SERVICE NOTES

Roland

VersaUV LEF-300

Confidential

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Revision History

Revision	Date	Description	Approver	Author
0	February 22, 2016	First edition	Kawai	Suzuki
1	July 26, 2016	[Special Tools] Chapter 1 Replacement of Main Parts [Scan Motor Replacement], [Carriage Belt Replacement] Chapter 2 Adjustment [Head Gap Sensor Position Adjustment] Chapter 5 Service Activities [Installation Checklist], [Maintenance Checklist]	Kawai	Kurita
2	September 16, 2016	Chapter 2 Adjustment [Service Mode] has been revised. Chapter 5 Service Activities [Main Specifications] has been deleted.	Kawai	Hosoya
3	December 9, 2016	Chapter 2 Adjustment [Head Gap Sensor Position Adjustment]	Kawai	Shin
4	February 1, 2017	Chapter 5 Service Activities [Installation Checklist], [Maintenance Checklist]	Kawai	Shin
5	October 23, 2017	Chapter 1 Replacement of Main Parts [Head Gap Sensor Replacement] Chapter 2 Adjustment [Service Mode], [Head Gap Sensor Position Adjustment] Chapter 4 Service Activities [Sensor Map]	Nimura	Saito
6	February 6, 2018	Chapter 5 Service Activities [Maintenance Checklist]	Nimura	Saito
7	March 2, 2018	Chapter 1 Replacement of Main Parts [Cap Top Replacement], [Pump Replacement]	Nimura	Saito
8	May 25, 2018	[Special Tools] Chapter 2 Adjustment [Table Height Adjustment]	Nimura	Saito
9	August 6, 2018	Chapter 1 Replacement of Main Parts [Feed Motor Replacement]	Nimura	Saito
10	July 1, 2019	Chapter 1 Replacement of Main Parts [Pump Replacement]	Nimura	Saito
11	November 28, 2019	Chapter 1 Replacement of Main Parts [Print Head Replacement] Chapter 2 Adjustment [Service Mode]	Nimura	Saito
12	December 16, 2019	[Special Tools]	Nimura	Saito
13	March 4, 2020	[Special Tools] Chapter 2 Adjustment [UV Lamp Illuminance Measurement]	Nimura	Saito
14	April 30, 2020	Chapter 2 Adjustment [Grease Up Maintenance] Chapter 5 Service Activities [Maintenance Checklist]	Nimura	Saito
15	September 28, 2020	Chapter 1 Replacement of Main Parts [Main Board Replacement] Contents of adjustments after main board replacement corrected.	Nimura	Saito
16				
17				
18				
19				
20				

Service parts

For information on service parts required for the replacement of parts or adjustment, refer to Parts Finder Web.

https://365rolanddg.sharepoint.com/sites/extranet/Work-SitePages/GSV-PartsFinder.aspx

⚠This machine uses ultraviolet light

⚠CAUTION

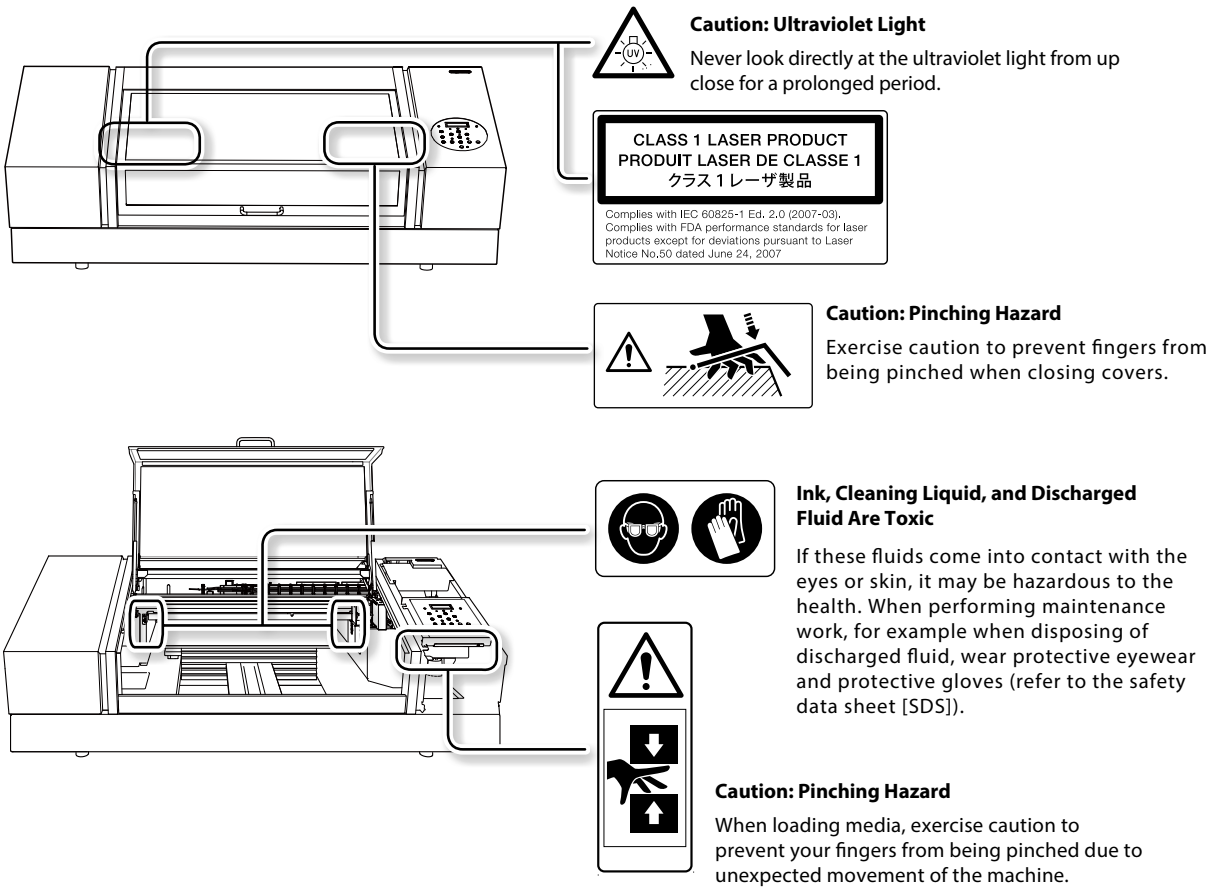
Never look at the blue-white (ultraviolet) light emitted from the print-head area for an extended time.

Looking directly at the ultraviolet light from up close for an extended period may result in eye injury.

⚠Caution: Ultraviolet Light

This machine is fitted with covers to keep external leakage of ultraviolet light at low levels, but incorrect handling or operation can lead to physical injury due to ultraviolet light. The extent of injury depends on the intensity and wavelength of the ultraviolet light, and the length of time of exposure. Prolonged exposure to strong ultraviolet light of hazardous wavelengths can cause injury to the eyes or skin. Exercise caution.

⚠Warning Labels


CLASS 1 LASER PRODUCT
PRODUIT LASER DE CLASSE 1
クラス 1 レーザ製品
Complies with IEC 60825-1 Ed. 2.0 (2007-03).
Complies with FDA performance standards for laser products except for deviations pursuant to Laser Notice No.50 dated June 24, 2007

Caution: Ultraviolet Light

Never look directly at the ultraviolet light from up close for a prolonged period.

Caution: Pinching Hazard

Exercise caution to prevent fingers from being pinched when closing covers.

Ink, Cleaning Liquid, and Discharged Fluid Are Toxic

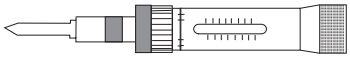
If these fluids come into contact with the eyes or skin, it may be hazardous to the health. When performing maintenance work, for example when disposing of discharged fluid, wear protective eyewear and protective gloves (refer to the safety data sheet [SDS]).

Caution: Pinching Hazard

When loading media, exercise caution to prevent your fingers from being pinched due to unexpected movement of the machine.

Special Tools △1 △8 △12 △13 △14

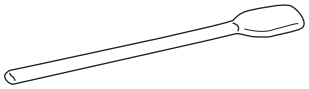
Part No.	ST-056
Part Name	TORQUE DRIVER N6
Purpose	Head alignment (Use it to secure the print head.)



Part No.	1000005463
Part Name	TOOL,BIT PHILLIPS NO.1 L150MM ST-107
Purpose	Head alignment (Use it to secure the print head.)

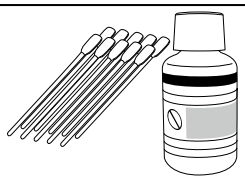
Part No.	ST-001
Part Name	TENSION GAUGE 2000GF/2000CN
Purpose	Belt tension adjustment

Part No.	~~ST-037~~ 1000003138
Part Name	~~CLEANING STICK TX712A~~ SET,CLEANER STICK TX712A 10PCS.
Purpose	Head cleaning



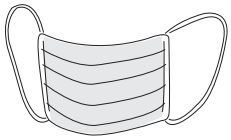
Part No.	21755107
Part Name	CLEANING LIQUID(SL) 500ML
Purpose	Head cleaning (SOL)

Part No.	22085118
Part Name	KIT,CLEANING(SL)
Purpose	Head cleaning (SOL) *Cleaning liquid + Cleaning sticks 10 pcs

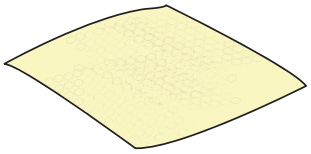


Part No.	1000005467
Part Name	TOOL,GLASSES UV COATING ST-111
Purpose	Protective goggles

Part No.	1000006676
Part Name	TOOL,DEODORANT MASK DPM-FM ST-116
Purpose	Activated carbon mask

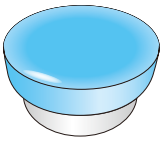


Part No.	1000005829
Part Name	TOOL,VINYL YE UV RESISTANT ST-113
Purpose	Replacement when the ink line is exposed to the outside light

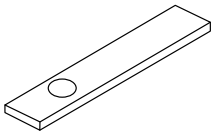


Part No.	3000000188
Part Name	SPACER,SHIM RING RF004010010
Purpose	Table flat adjustment

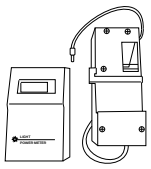
Part No.	6000004129
Part Name	GREASE,FLOIL G-902 10ML_02
Purpose	Scan motor replacement Carriage belt replacement Grease up maintenance



Part No.	1000021760
Part Name	SCRAPER,UV LAMP GLASS LEF2-200
Purpose	UV lamp cleaning



Part No.	1000021605
Part Name	SET,PWR-M C6080-385-NF,E15348-01 SV
Purpose	UV lamp illuminance measurement



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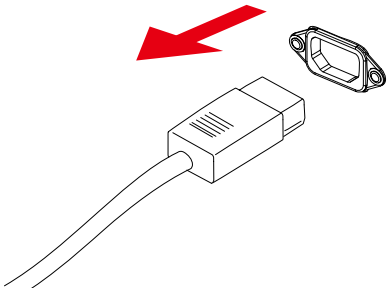
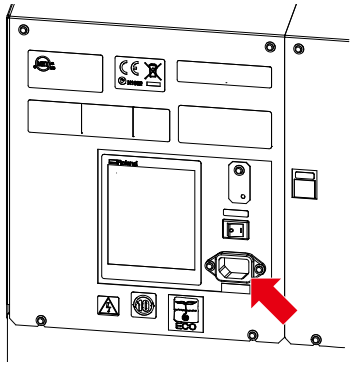
To Ensure Safe Work

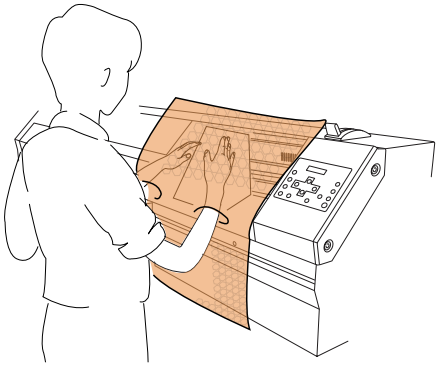
Turn off the power SW and unplug the power cord of the machine before performing the parts replacement. Performing the parts replacement while the power is turned on may result in injury by unintended operation of the machine.





Always use the UV protection sheet when the ink line is exposed to the light* during the replacement, or ink will harden and clog in the ink line. And it will affect the condition of a machine.

*The light means the light which includes the ultraviolet light. The fluorescent light has the ultraviolet light. Therefore, consider that most of the light includes the ultraviolet light.



Use rubber gloves to prevent direct contact with the skin.
Contact with the ink may cause skin irritation.

Use deodorizing mask with activated carbon when necessary. When you carry the parts which are stained with ink such as head or damper, put these parts into a bag (for example aluminum bag of ECO-UV INK) or container that has a sealing capability. Otherwise, you might feel sick because of the evaporated ECO-UV INK.

Wear protective goggles when turning on the UV Lamp without covers and when replacing the heads.

Static electricity can harm electronic devices. To prevent static damage, discharge static electricity from your body before you touch any of electronic devices. You can do so by touching an unpainted metal surface on the chassis. You can also take the following steps to prevent damage from electrostatic discharge (ESD).

- When unpacking a static-sensitive device from its shipping carton, do not remove the device from the antistatic packing material until you are ready to install the device to the machine. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body
- When transporting a sensitive device, first place it in an antistatic container or packaging.
- Handle all sensitive devices in a static-safe area. If possible, use antistatic floor pads and workbench pads.

Print Head Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver

Special tools	
ST-056	TORQUE DRIVER N6
1000005463	TOOL, BIT PHILLIPS NO.1 L150MM ST-107
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. Print head replacement
2. Thermistor check
3. Chapter 2 "Print Head Alignment"
4. Clearing the head information

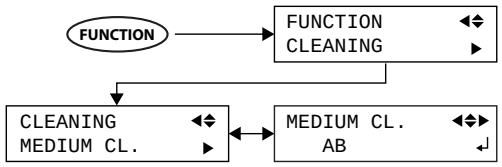
Referential time for work

Contents of work	Time
Print head replacement	20 min.
Thermistor check	1 min.
Print head alignment	40 min.
Clearing the head information	1 min.

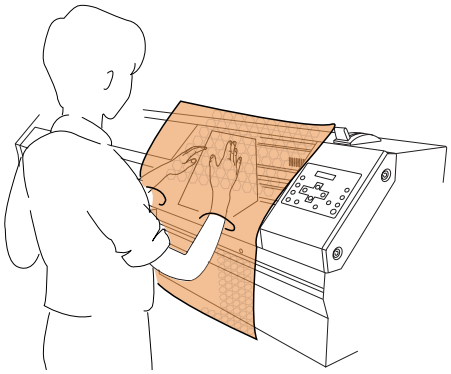
Procedure

CAUTION

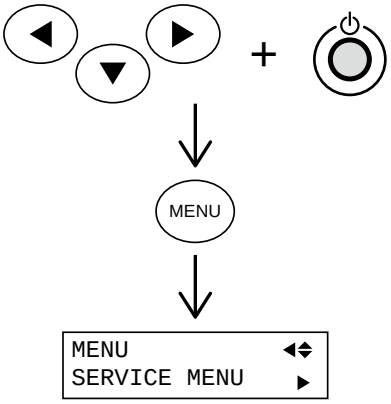
- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.



1. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**



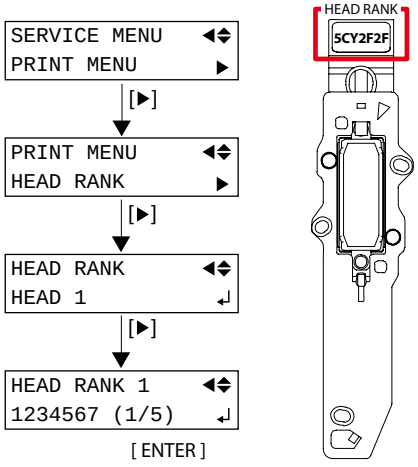
2. **Select [SERVICE MENU] > [PRINT MENU] > [HEAD RANK]. Select the No. of the print head you are going to replace, and input the head rank written on the sticker on the new print head. Select digits with [◀] [▶] keys, and change the parameter with [▲] [▼] keys. Press the [ENTER] key to save the setting.**

CAUTION

Make sure to input the head rank before installing the print head. You will not be able to see the head rank written on the sticker after you have installed the print head to the machine.

NOTE

The leftmost print head for CY and MG is [HEAD 1]. The second one from the left is [HEAD 2], the third one is [HEAD 3], and the rightmost one is [HEAD 4].



3. **System switch setting changes depending on the type of print head. If you replace all the print head to (6000005180 ASSY,HEAD,INKJET SV LEF2-300), change the system switch referring to the following table.**

①	②
6000005213 ASSY,HEAD INKJET SOL XC-540 SV2	6000005180 ASSY,HEAD,INKJET SV LEF2-300
[•••] is included in the head rank.	Head rank has only letters and numbers. ([•••] is not included.)
System switch PAGE13 > Bit 5 > [0]	System switch PAGE13 > Bit 5 > [1]

CAUTION

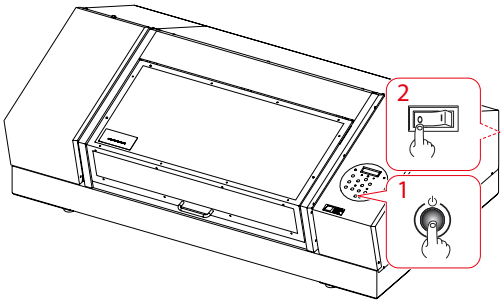
After you change the system switch, be sure to turn off the sub power switch.

5. **Turn off the sub power SW, then turn off the main power SW.**

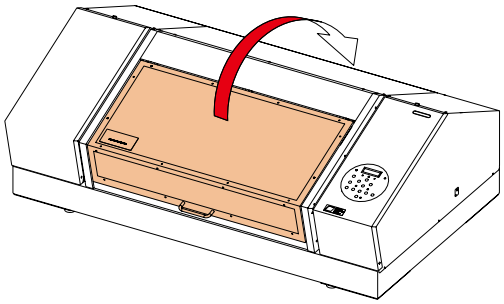
CAUTION

Make sure to turn off the main power SW before replacing the print head. If it is not turned off, the print head or the main board could break. Replacing the print head with the power cord unplugged is recommended.

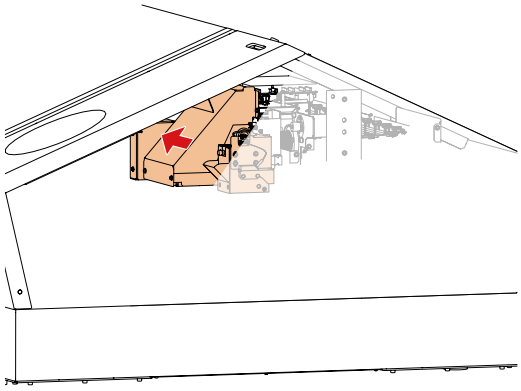
1. Sub power SW
2. Main power SW



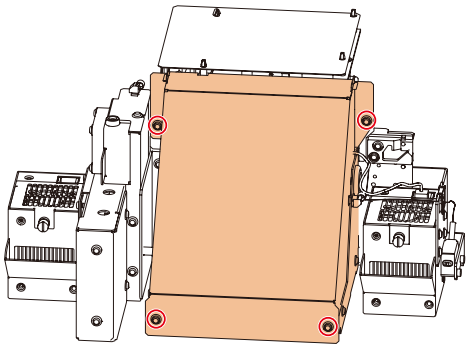
6. **Open the cover.**



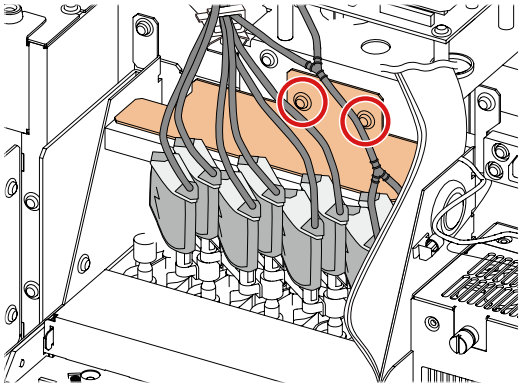
7. **Unlock the head carriage, and move it to the left by hand.**



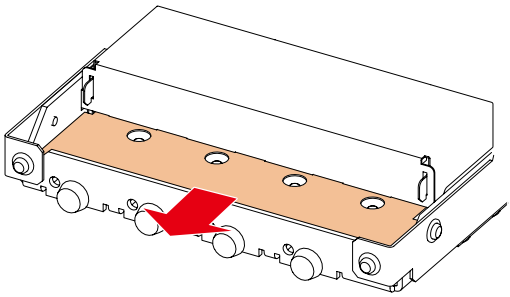
8. Remove four screws that secure the carriage cover.



9. Remove two screws that secure the damper plate.



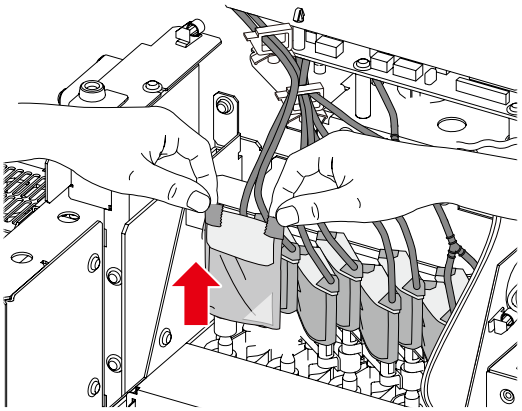
10. Pull the head shield to the front and remove it.



11. Remove two ink dampers by pulling the print head you are going to replace.

CAUTION

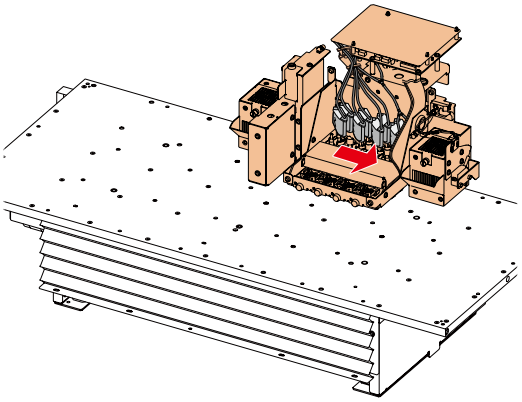
- Ink dampers may break if you grasp them too hard.
- Remove the ink dampers with the head board cover attached. It prevents ink from dripping on the head board. If ink drips on the head board, the print head or the head driving IC will break. Pull the upper end of the damper shield when removing the ink dampers.



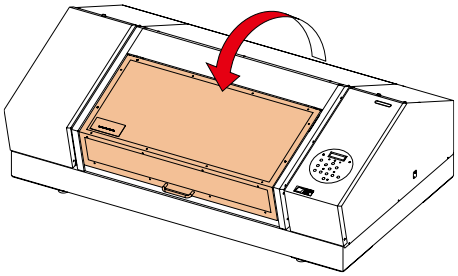
12. Move the head carriage to the lock position.

NOTE

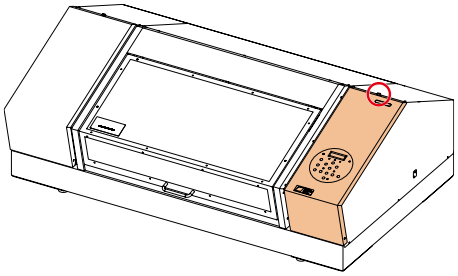
Do not lock the head carriage.



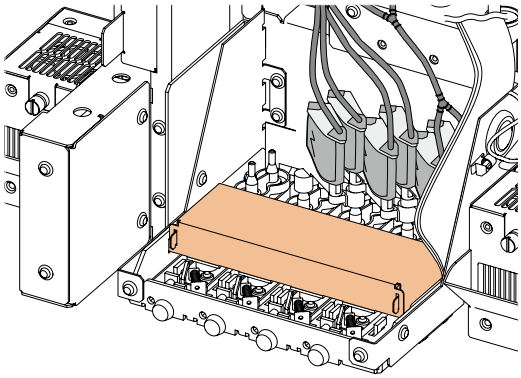
13. Close the cover.



14. Remove the screw that secures the cover.

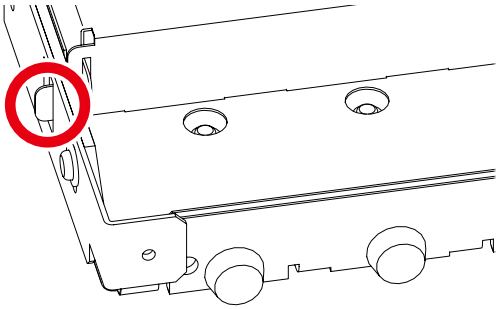


15. Remove the head board cover.



NOTE

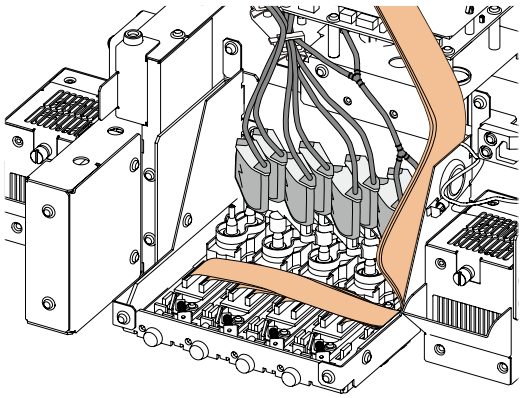
There is a tab on the left side of the head board cover.



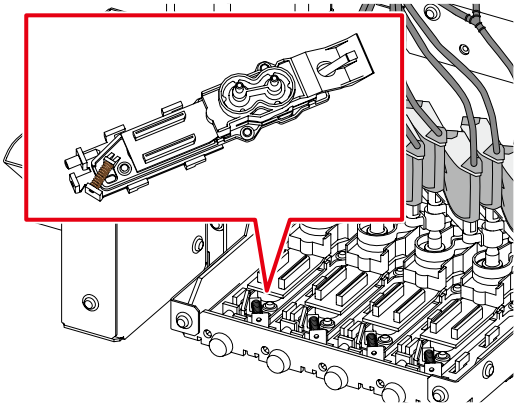
16. Disconnect the ribbon cables from the print heads.

NOTE

Make sure that LED on the carriage board is turned off before disconnecting the ribbon cables.



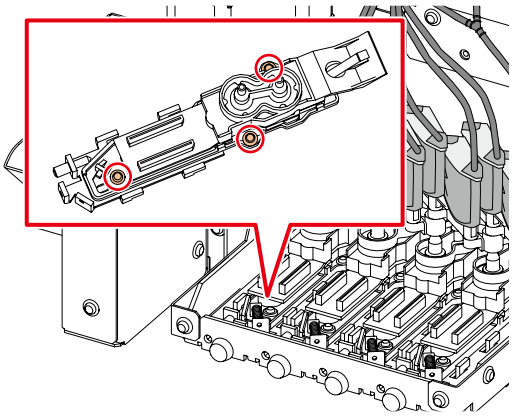
17. Remove the spring from the print head you are going to replace.



18. Remove three screws that secure the print head.

NOTE

To remove the print head, pull it to the front and pull up.

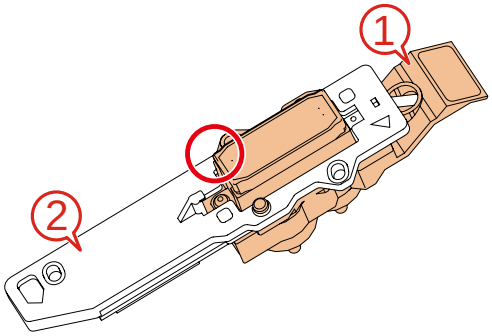


19. Remove the print head from the head adapter. Then, install a new print head using a torque driver.

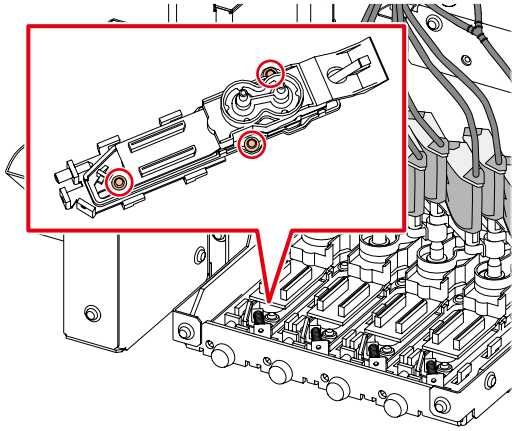
CAUTION

- Install the new print head by pressing it against the bottom left corner of the adapter.
- If you replaced all the print heads with (6000005180 ASSY,HEAD,INKJET SV LEF2-300), confirm that the system switch has been changed.

1. Print head
2. Head adapter



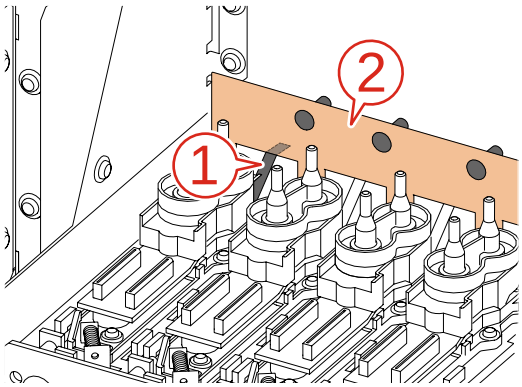
20. Temporarily fix the print head to the head carriage with three screws.



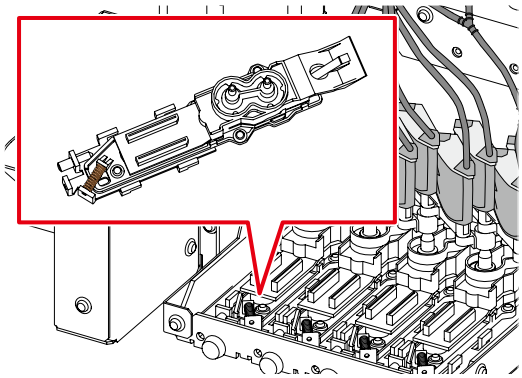
CAUTION

Before fixing the print head, make sure that the earth terminal is placed under the head shield.

1. Earth terminal
2. Head shield



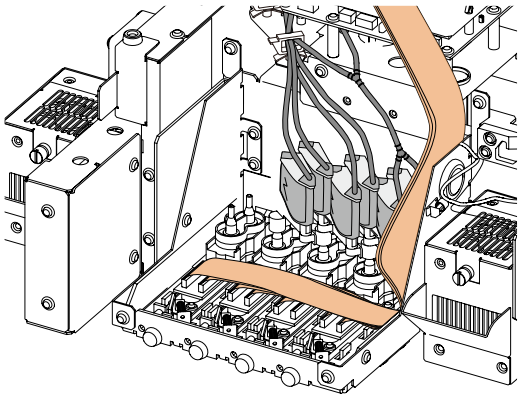
21. Attach the spring. Then, fully tighten the screws using a torque driver.



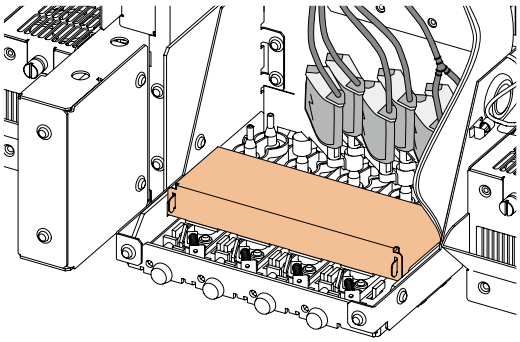
22. Connect the ribbon cables to the print heads.

CAUTION

Be careful not to connect a wrong ribbon cable.

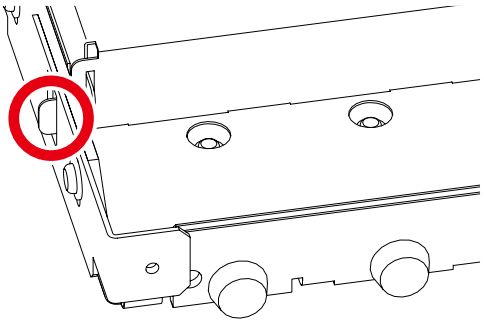


23. Attach the head board cover.



CAUTION

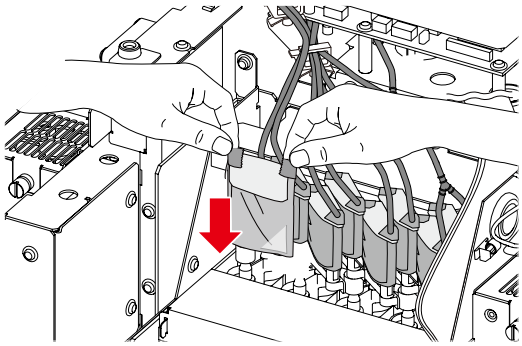
When attaching the head board cover, make sure to hook the tab to the carraige base.



24. Attach the ink dampers to the print head.

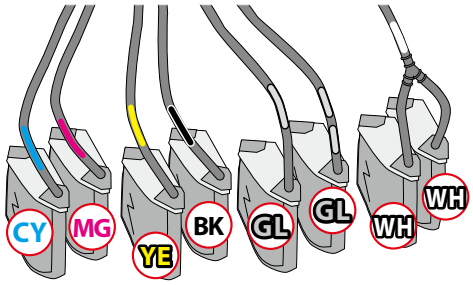
CAUTION

- Ink dampers may break if you grasp them too hard.
- Attach the ink dampers with the head board cover attached. If ink drips on the head board, the print head or the head driving IC will break.



NOTE

Attach the ink dampers according to the color mark on the ink tubes.

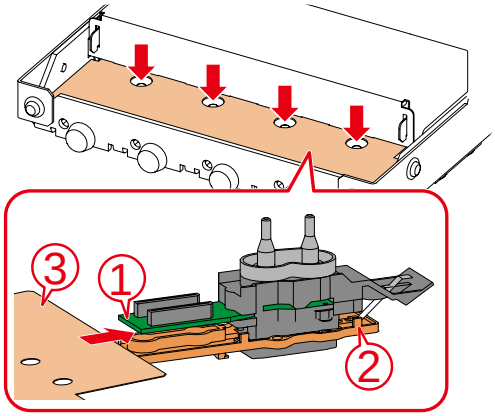


25. Attach the head shield.

NOTE

Insert the head shield between the head board and the head adapter. Place it so that the screws can be seen from the screw holes.

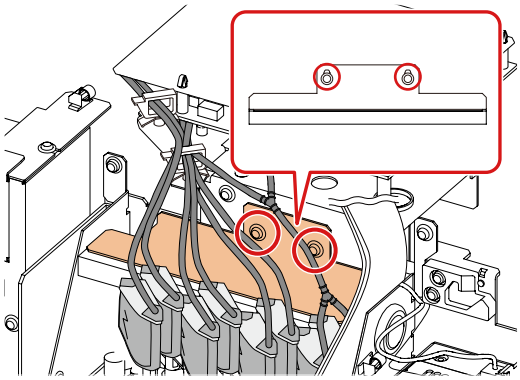
1. Head board
2. Head adapter
3. Head shield



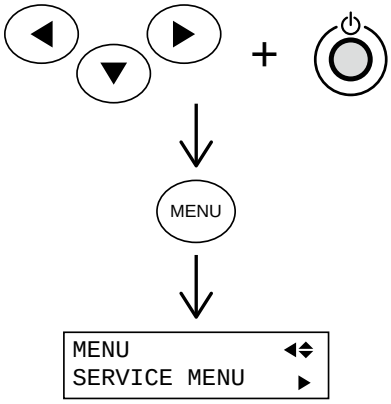
26. Tighten two screws to secure the damper plate.

CAUTION

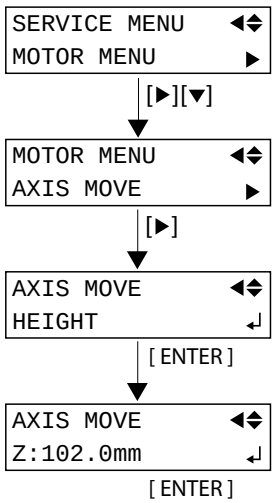
- Be careful not to press it down to the dampers. Dampers could break.
- Tighten the screws at the bottom of the slotted holes.



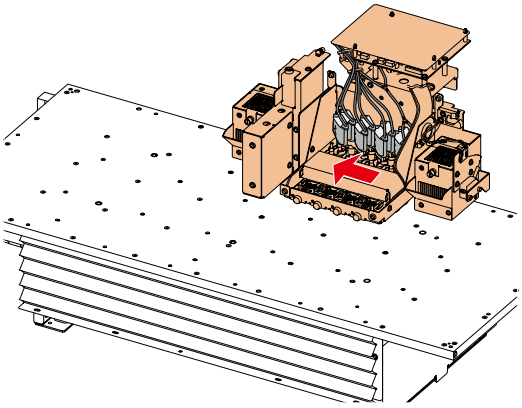
27. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



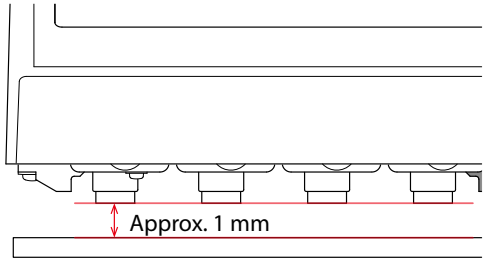
28. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT], and set the value to [102.0mm].



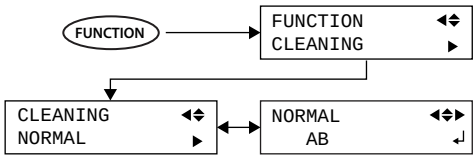
29. **Move the head carriage to the left by hand.**



30. **Check that the gap between the head surface and the table top is around 1 mm. If the head height is not around 1 mm, perform Chapter 2 "Print Head Height Adjustment".**



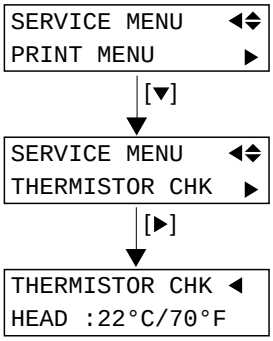
31. **Perform normal cleaning twice.**



32. **Perform the following.**

32-1. Thermistor check

Select [SERVICE MENU] > [PRINT MENU] > [THERMISTOR CHK], and confirm that the print head temperature is not abnormal.



32-2. Chapter 2 "Print Head Alignment"

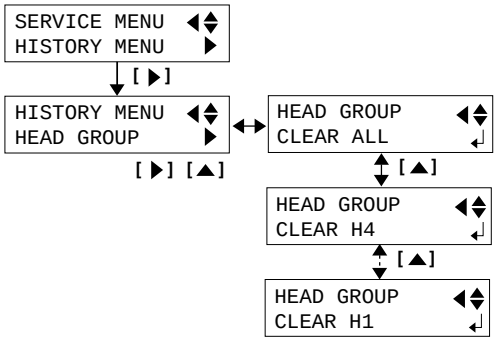
32-3. Clearing the head information

Clearing the Head Information

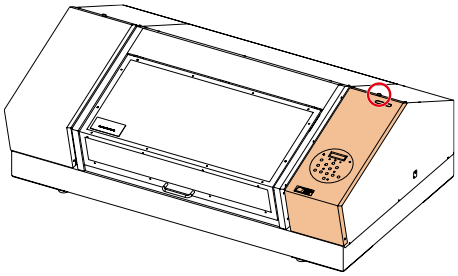
33. **After thermistor check and head alignment, select [SERVICE MENU] > [HISTORY MENU] > [HEAD GROUP] and clear the head information. Select the print head you replaced and press the [ENTER] key.**

NOTE

The leftmost print head for CY and MG is [HEAD 1]. The second one from the left is [HEAD 2], the third one is [HEAD 3], and the rightmost one is [HEAD 4].



34. **Tighten the screw to secure the cover.**

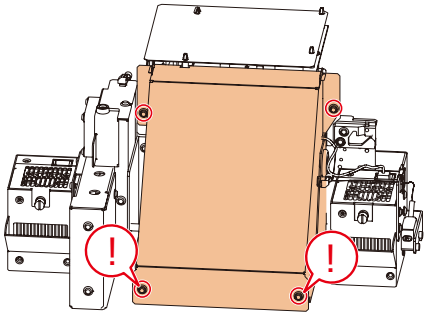


Attaching the Head Carriage Cover

35. **Tighten four screws loosely first, then tighten them fully to secure the carriage cover. Be careful not to tighten them too hard. The cover may become distorted.**

CAUTION

When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



36. **(End of procedure)**

Wiper Replacement

Information

Necessary tools

General tools
Tweezers

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. Wiper replacement

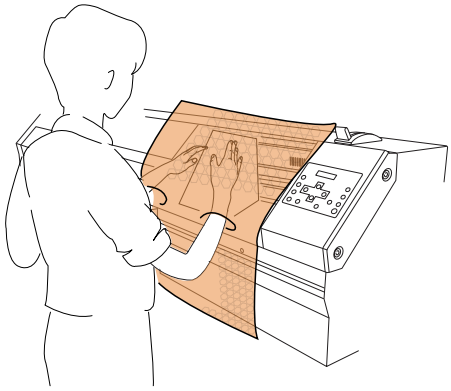
Referential time for work

Contents of work	Time
Wiper replacement	10 min.

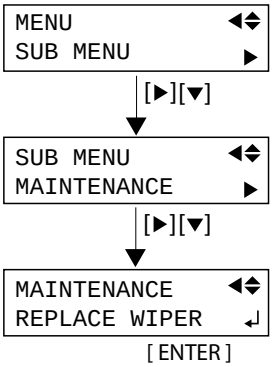
Procedure

CAUTION

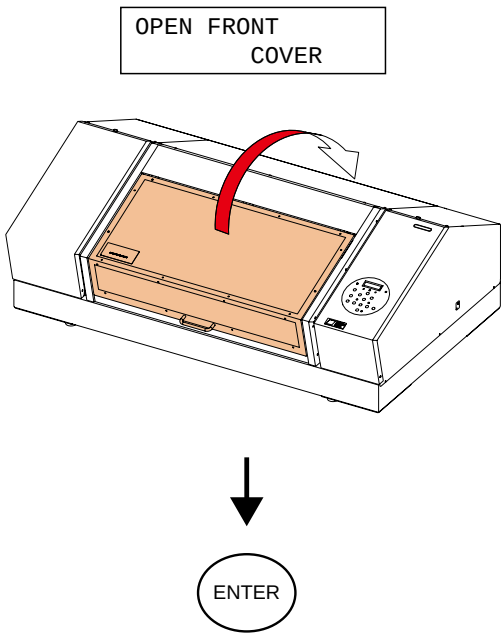
Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.



1. **Select [SUB MENU] > [MAINTENANCE] > [REPLACE WIPER] in the user menu, and press the [ENTER] key.**



2. **The message below appears. Open the cover, and press the [ENTER] key.**

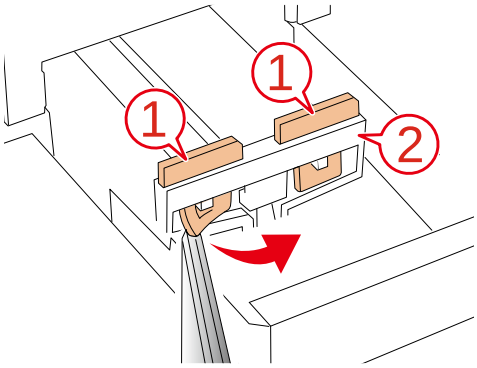


3. **The machine is ready for wiper replacement when the message below is displayed.**

```
FINISHED?
```

4. **Grasp the bottom portion of the wipers with tweezers and disconnect them from the hooks.**

1. Wiper
2. Wiper carriage



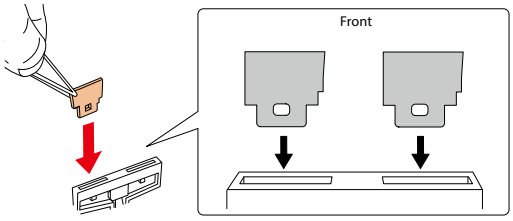
NOTE

Clean ink on the wiper frame and the scraper with a cleaning stick.

5. **Attach new wipers.**

CAUTION

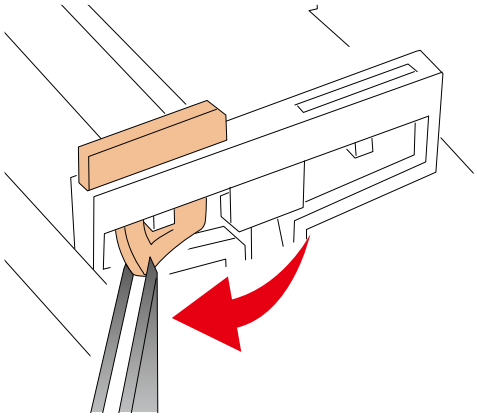
Insert the wipers with the orientation shown in the figure.



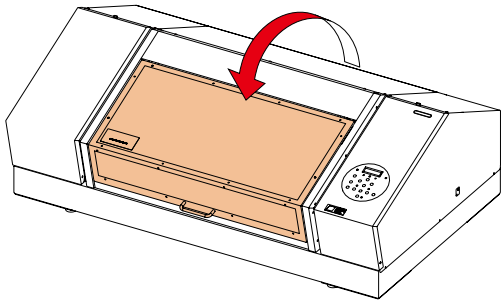
6. **Use tweezers to press the area shown in the figure, and attach the wipers to the hooks.**

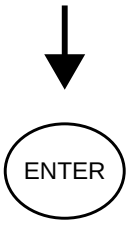
CAUTION

Make sure the wipers catch on the hooks. If the wipers are not hooked, they may fall off during operation.



7. **Close the cover. Press the [ENTER] key.**





8. **The head carriage moves back to the standby position, and the print head cleaning starts automatically. When the cleaning is finished, the screen shown in the figure appears.**

```
MAINTENANCE
REPLACE WIPER
```

9. **(End of procedure)**

Cap Top Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. Cap top replacement

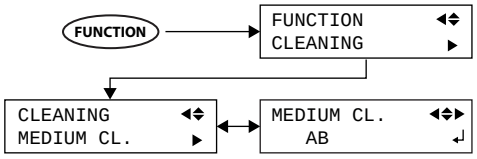
Referential time for work

Contents of work	Time
Cap top replacement (four cap tops)	20 min.

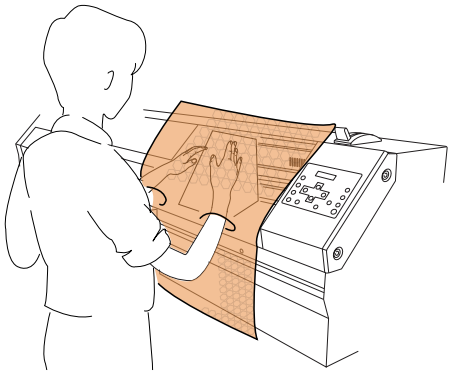
Procedure

CAUTION

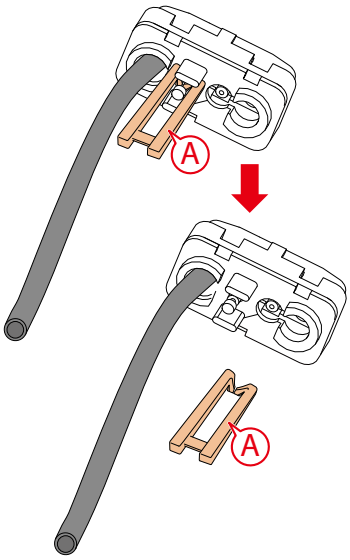
- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



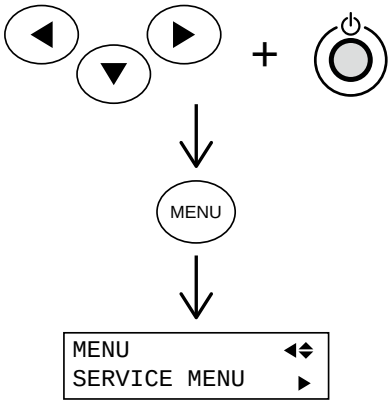
- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.



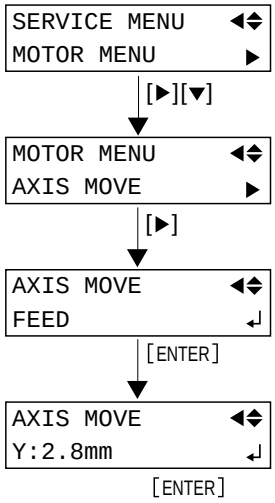
- Before fixing a cap top, make sure to remove the part "A" and discard it.



1. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.

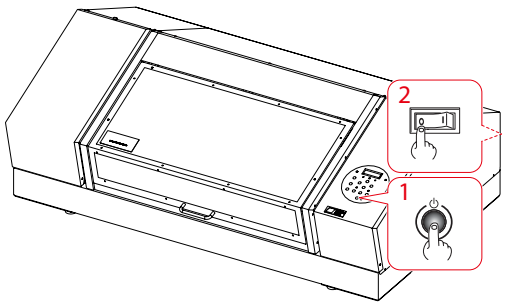


2. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED], and set the value to [Y:2.8mm] to move the table unit to the rear.

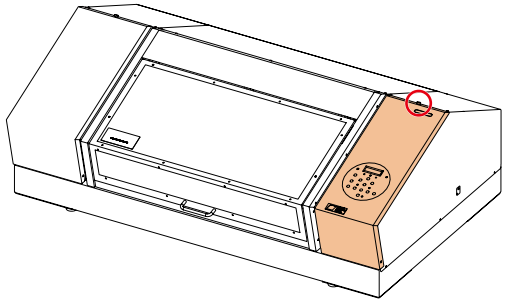


3. **Turn off the sub power SW, and then turn off the main power SW.**

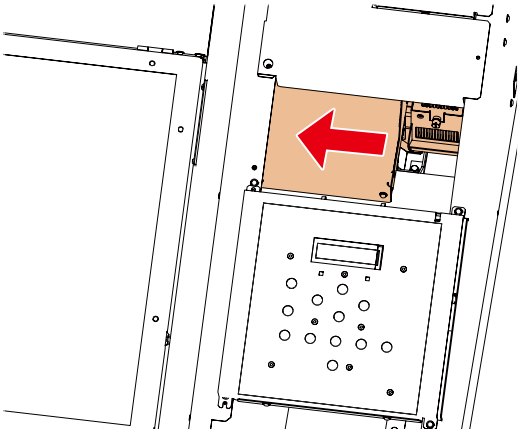
1. Sub power SW
2. Main power SW



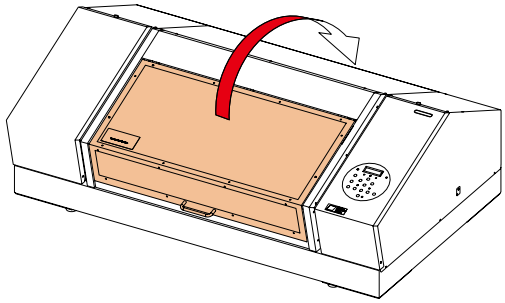
4. **Remove the screw that secures the cover.**



5. **Unlock the head carriage and move it to the left.**



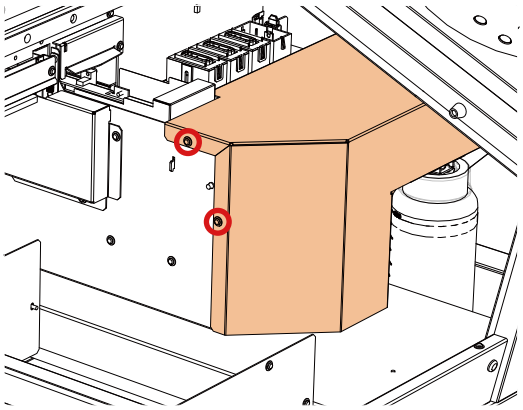
6. **Open the cover.**



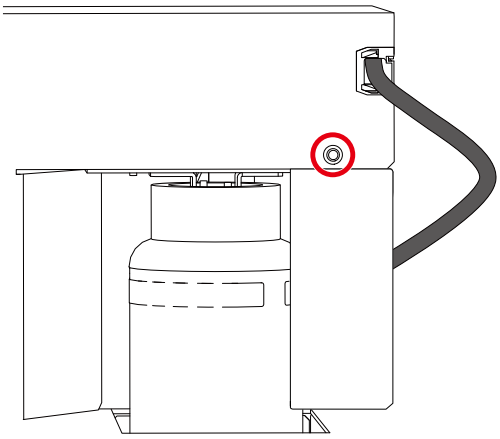
7. **Remove two screws.**

CAUTION

The I/S cover cannot be removed yet.



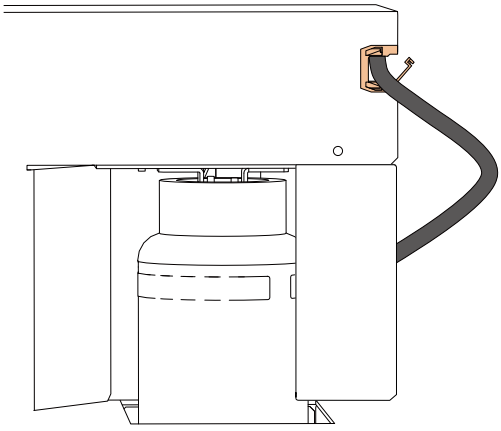
8. **Remove the screw.**

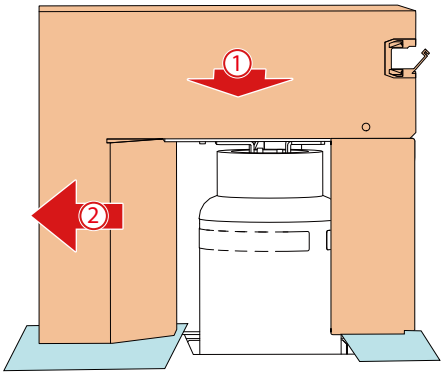


9. **Release the cable from the clamp. Lift up the back of the cover and pull it out carefully (in the direction of the arrow marked "1"). Then, slide the cover to the left (in the direction of the arrow marked "2").**

CAUTION

Place something such as media under the cover to prevent the machine from being scratched.



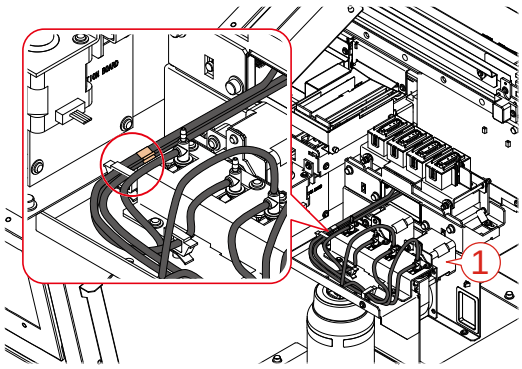


10. **Remove the light shielding tape from the adapter, which connects the ink tube from the cap top and the ink tube from the pump. Then, remove the ink tube connected to the cap top from the adapter.**

CAUTION

Make sure to replace a cap top one by one. If you remove the ink tubes connected to the other pumps at the same time, there is the risk of connecting a wrong tube.

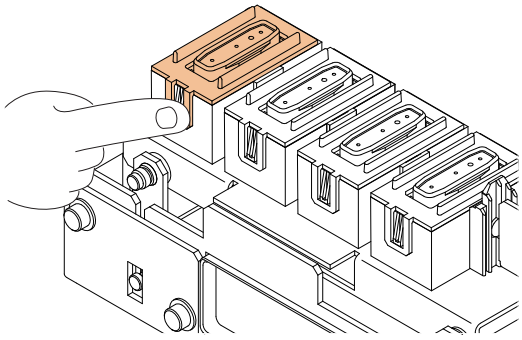
1. Pump



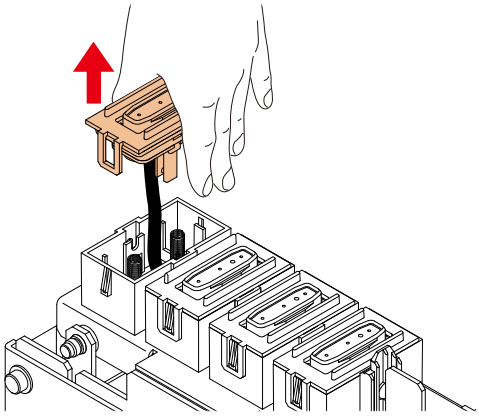
11. **Unhook the cap frame while holding it. Then, remove it carefully.**

CAUTION

There is a spring under the cap top. If you do not hold the cap frame while unhooking it, the cap top may jump out.



12. **Remove the cap top together with the tube.**

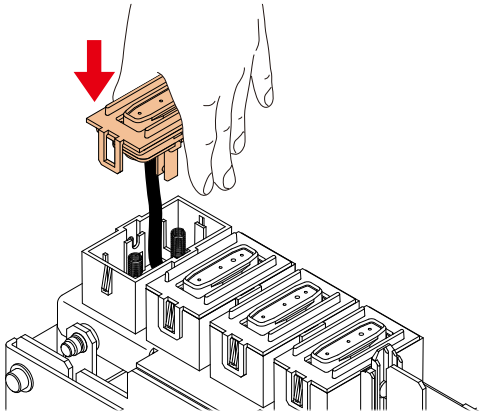


13. **Attach a new cap top so that the tube side faces the front.**

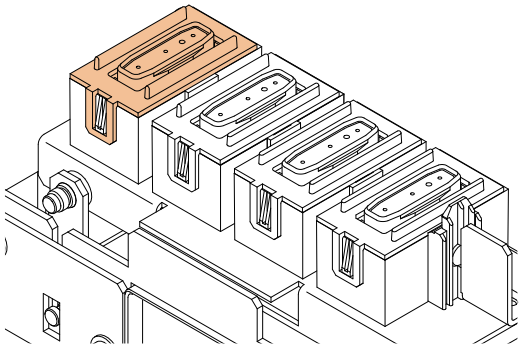
CAUTION

Make sure to observe the following points:

- Do not touch the tip of the rubber.
- Make sure that the spring is properly attached under the cap top.
- Do not bend the tube.



14. **Attach the cap frame.**

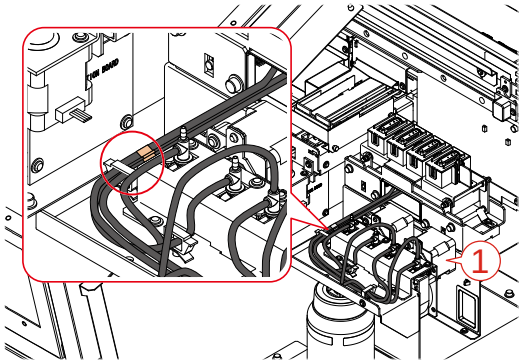


15. Instert the ink tube from the cap top into the adapter. Wrap the adapter with the light shielding tape. Repeat the steps and replace the other cap tops in the same manner.

CAUTION

- Insert the tube firmly as far as they will go.
- When fastening the tube with the clamp highlighted with the red circle in the figure, make sure that the adapter is placed on the cap top side.

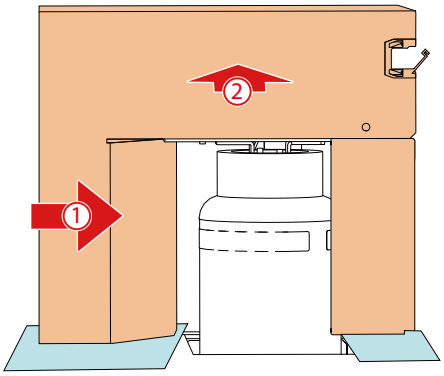
1. Pump

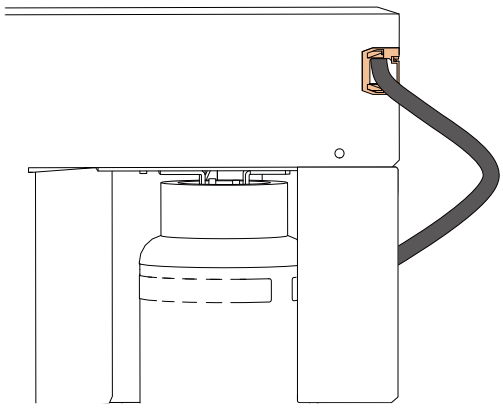


16. Carefully slide the cover to the right (in the direction of the arrow marked "1"). Then, push the cover to the rear as far as they will go (in the direction of the arrow marked "2"). Fasten the cable with the clamp.

CAUTION

Place something such as media under the cover to prevent the machine from being scratched.

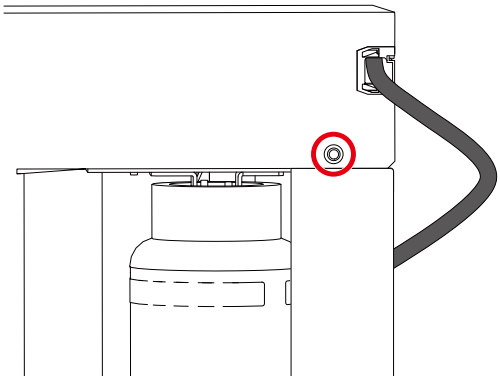




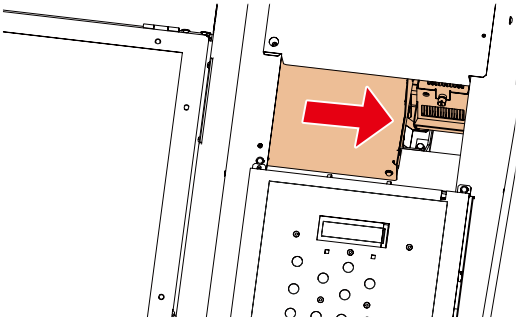
17. Tighten the screw.

CAUTION

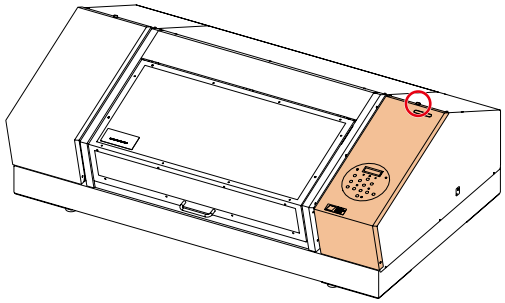
- Be careful not to get the ink tubes caught when securing the cover.
- Be careful not to get the drain tubes caught when installing the drain bottle.



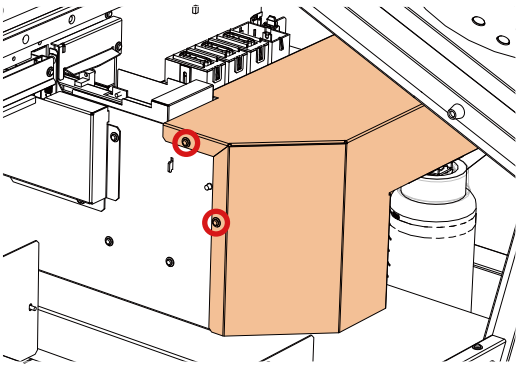
18. Move the head carriage by hand to the lock position.



19. Tighten the screw to secure the cover.



20. Tighten two screws to secure the cover.



21. (End of procedure)

Scan Motor Replacement ⚠1 ⚠14

Information

Necessary tools

General tools
2.5 mm hexagonal wrench
No.2 Phillips screwdriver

Special Tools	
6000004129	GREASE,FLOIL G-902 10ML_02
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Scan motor replacement**
2. **Servo lock check**
3. **Aging check**
4. **Clearing the motor working hours**

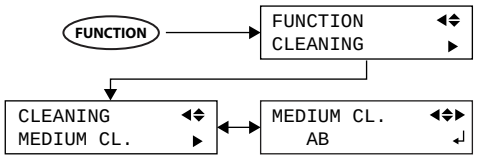
Referential time for work

Contents of work	Time
Scan motor replacement	20 min.
Servo lock check	1 min.
Aging check	5 min.
Clearing the motor working hours	1 min.

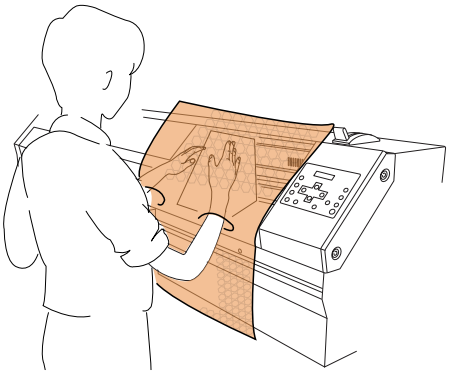
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

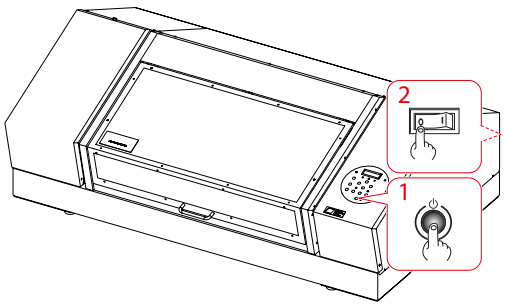


- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

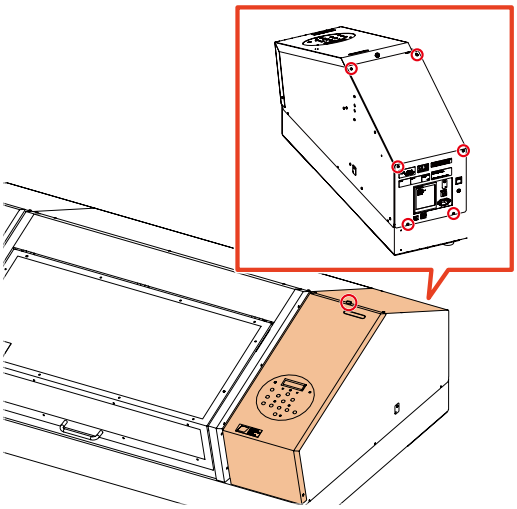


1. **Turn off the sub power SW, and then turn off the main power SW.**

1. Sub power SW
2. Main power SW

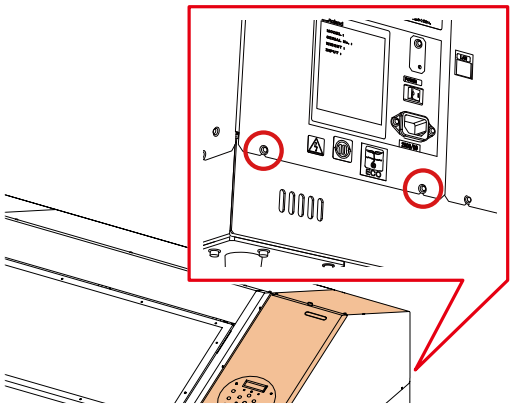


2. Remove seven screws that secure the covers.

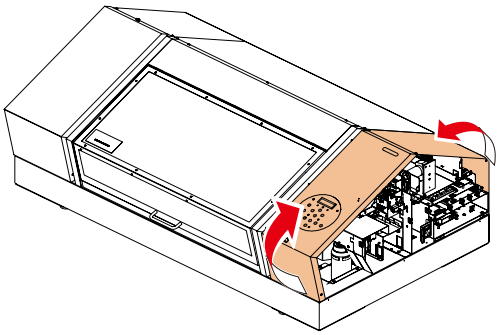


CAUTION

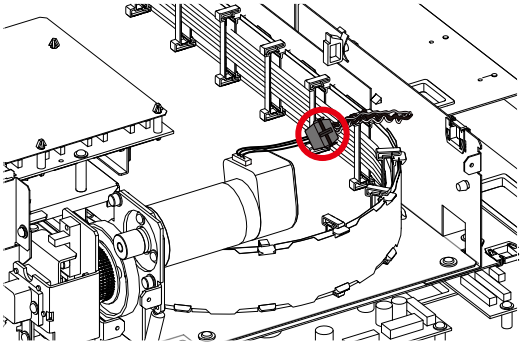
Do not remove the two screws that secure the top cover. Just loosen them.



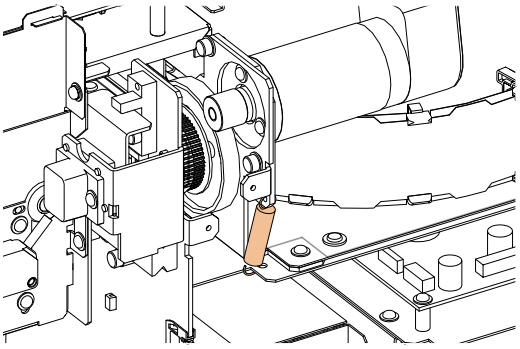
3. Place the covers. Do not tighten the screws yet.



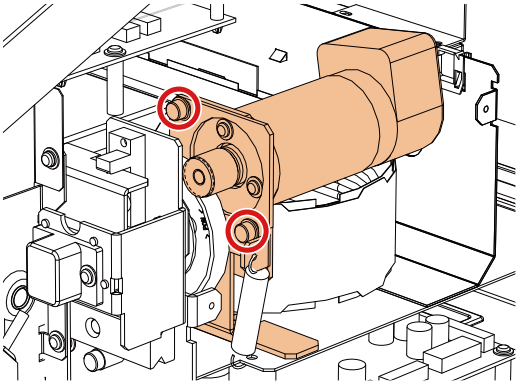
4. Unplug the connector.

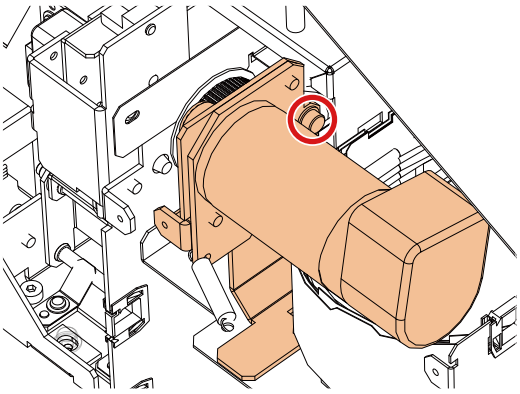


5. Remove the spring.



6. Remove three screws, and remove the flange together with the motor.

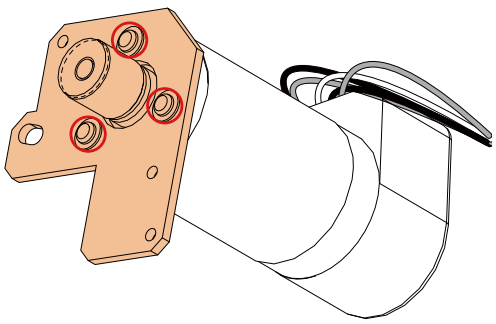




7. Remove three screws. Attach a new motor to the flange.

CAUTION

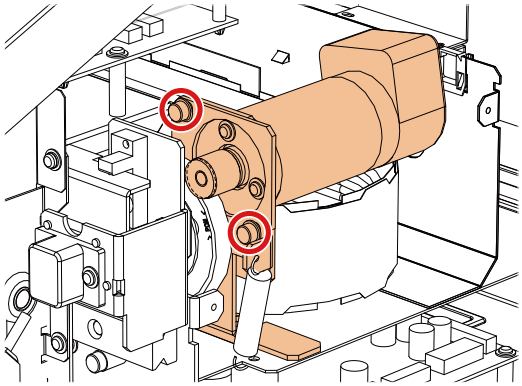
- Bundle the motor cable of the new motor with a cable tie. Be careful not to bend the cable root.
- Be careful of the orientation of the flange.

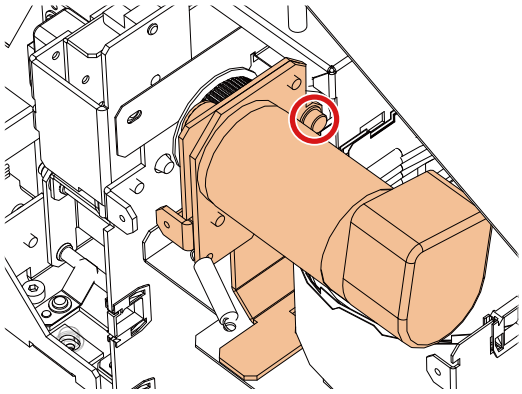


8. Loosely tighten three screws.

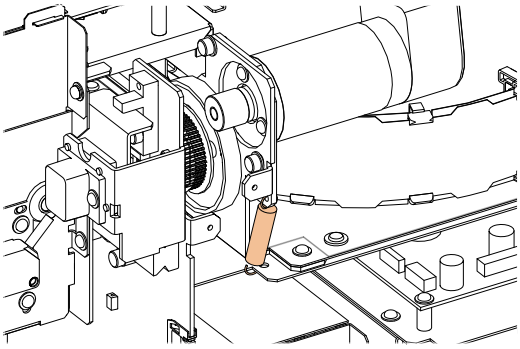
CAUTION

One of the screws needs to be installed from the back.

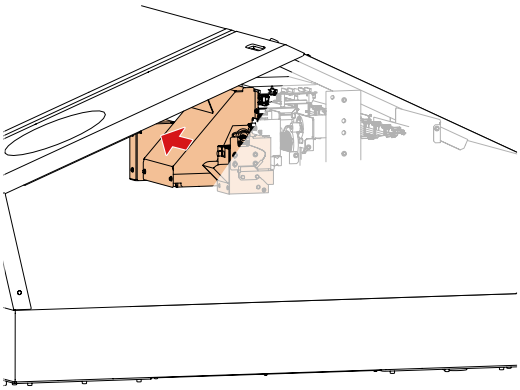




9. Attach the spring.

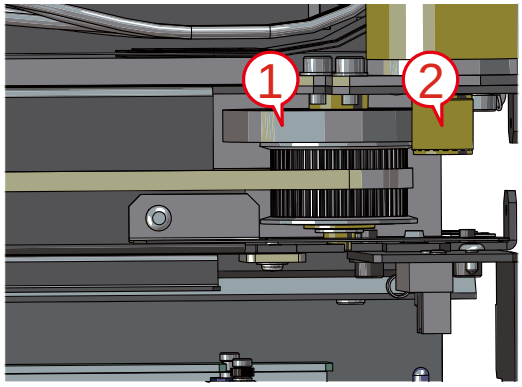


10. Unlock the head carriage.

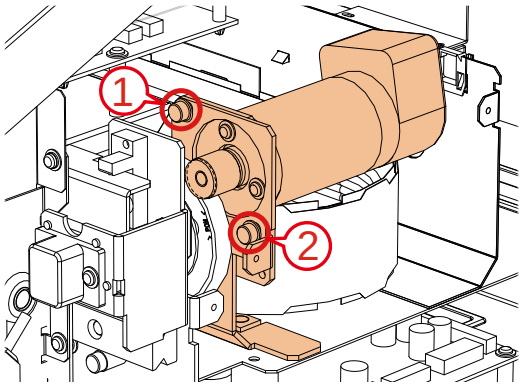


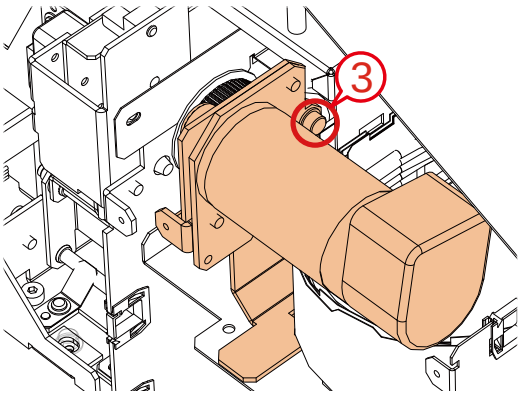
11. Turn the drive gear at least one revolution by moving the head carriage left and right, and check that the gears mesh together.

1. Drive gear
2. Motor gear



12. Fully tighten three screws in the order shown below.



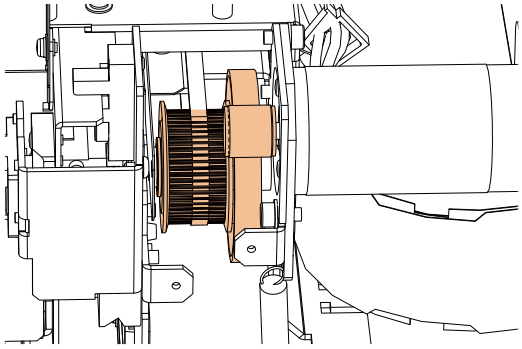


13. Turn the drive gear little by little by hand, and check that there is no backlash.

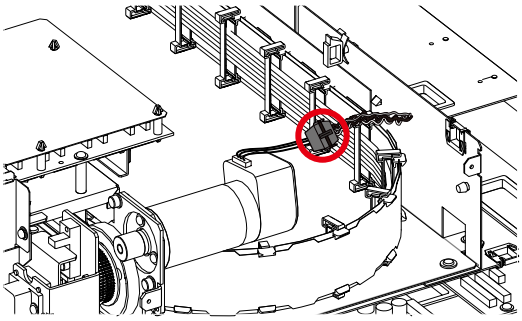
- Grease: GREASE,FLOIL G-902 10ML_02
- Volume: as needed

CAUTION

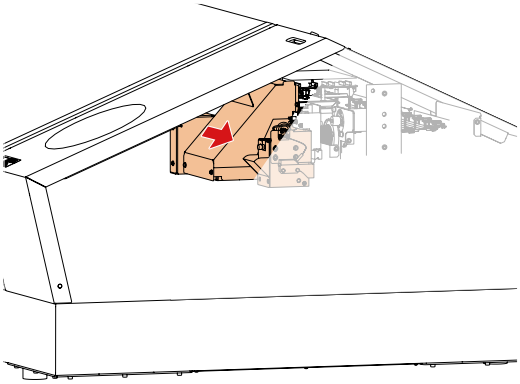
Apply grease to the drive gear and the motor gear.



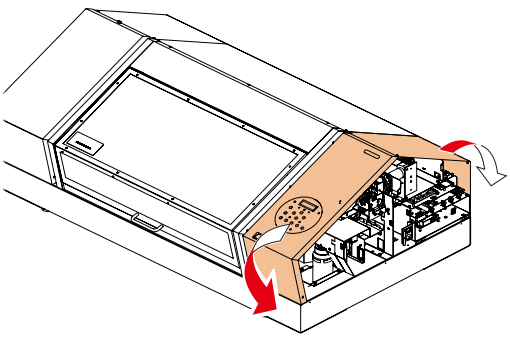
14. Plug the connector.



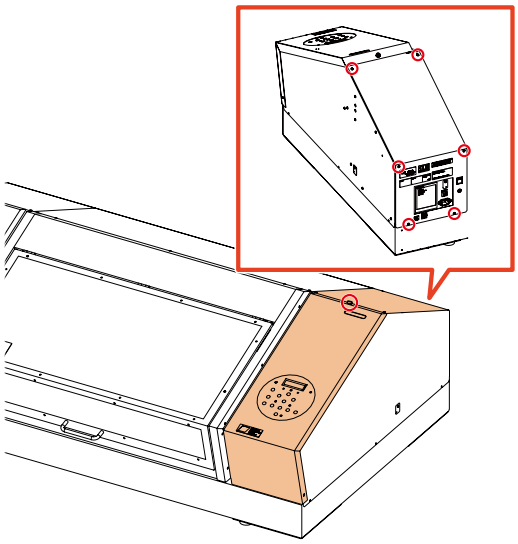
15. Move the head carriage to the lock position.



16. Remove the covers temporarily.

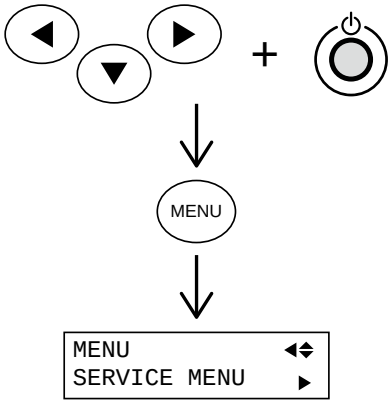


17. Tighten seven screws to secure the covers.

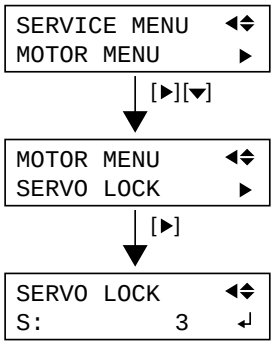


Servo Lock Check

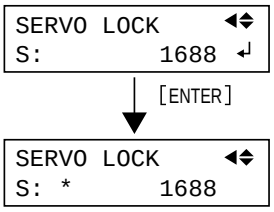
18. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



19. Select [SERVICE MENU] > [MOTOR MENU] > [SERVO LOCK] > [S]. Confirm that the value changes as you move the head carriage left and right by hand.



20. Press the [ENTER] key to activate the motor. Check that the head carriage can not be moved easily by hand and the value on the LCD doesn't change.

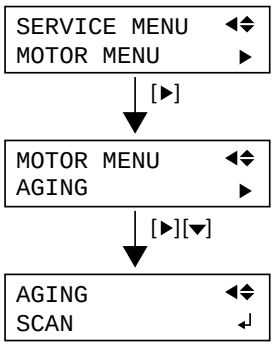


Aging Check

21. Go back to [MOTOR MENU]. Select [AGING] > [SCAN], and press the [ENTER] key. Check that the machine performs aging, then exit the menu.

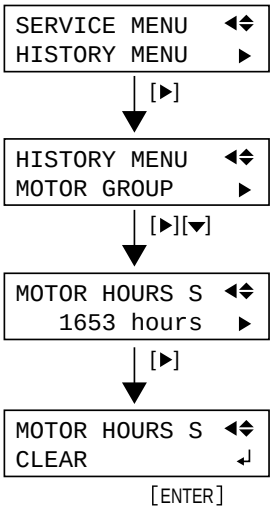
CAUTION

Remove media before performing aging.



Clearing the Motor Information

22. Go back to [SERVICE MENU]. Select [HISTORY MENU] > [MOTORGROUP] > [MOTOR HOURS S] > [CLEAR], and press the [ENTER] key. The motor working hours will be reset to 0.



23. (End of procedure)

Pump Replacement ⚠7 ⚠10

Information

Necessary tools

General tools
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. Pump replacement
2. Pump check
3. Clearing the pump rotation time

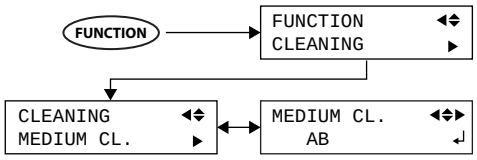
Referential time for work

Contents of work	Time
Pump replacement (two pumps)	20 min.
Pump check	1 min.
Clearing the pump rotation time	1 min.

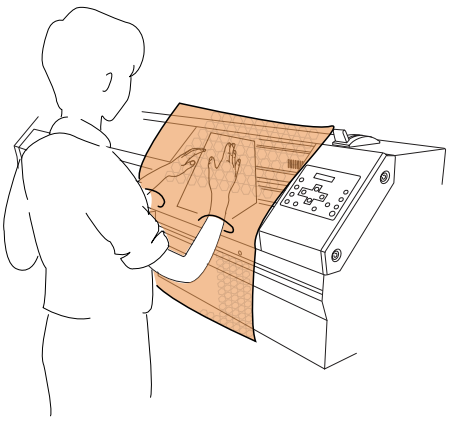
Procedure

CAUTION

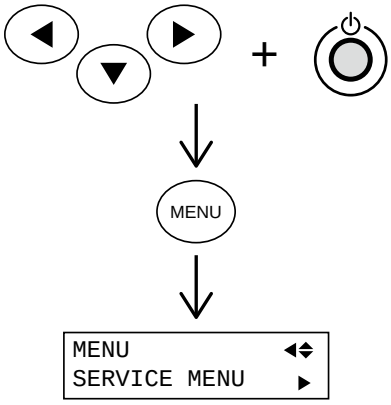
- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



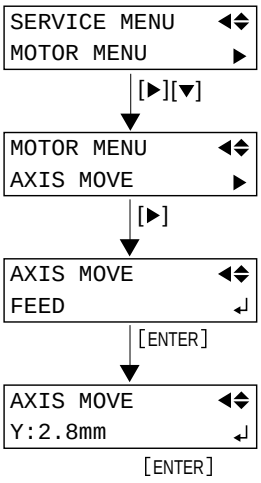
- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.



1. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**

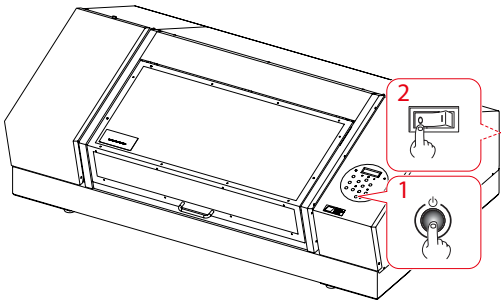


2. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED], and set the value to [Y:2.8mm] to move the table unit to the rear.

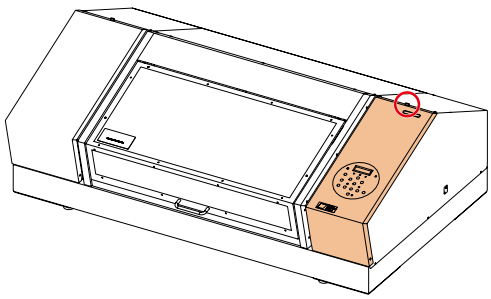


3. Turn off the sub power SW, and then turn off the main power SW.

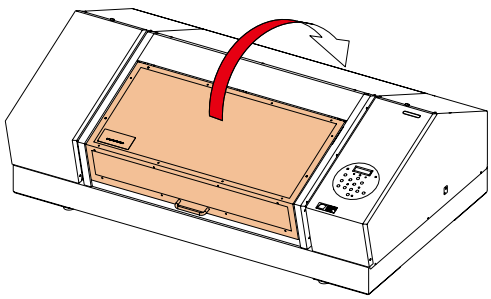
1. Sub power SW
2. Main power SW



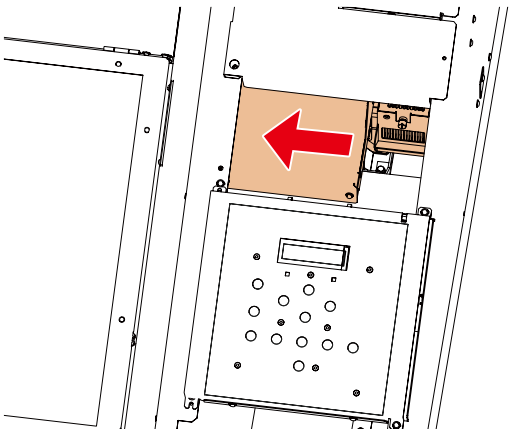
4. Remove the screw that secures the cover.



5. Open the cover.



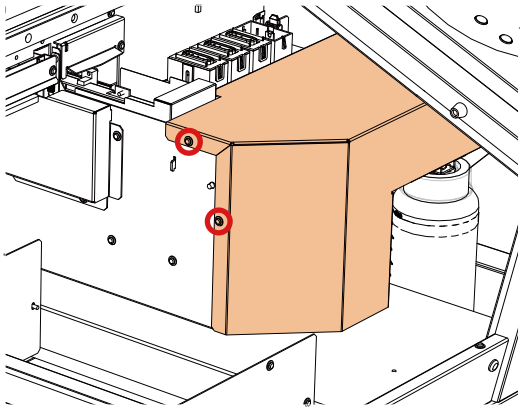
6. Unlock the head carriage and move it to the left by hand.



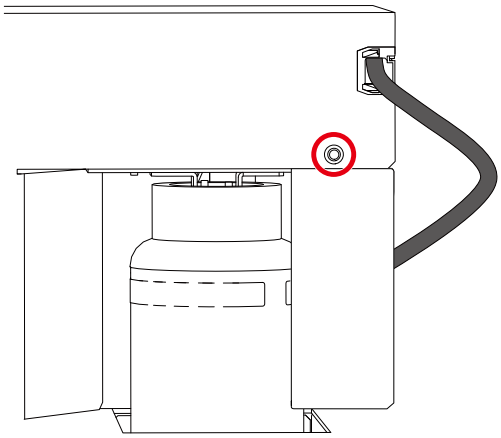
7. Remove two screws.

CAUTION

The I/S cover cannot be removed yet.



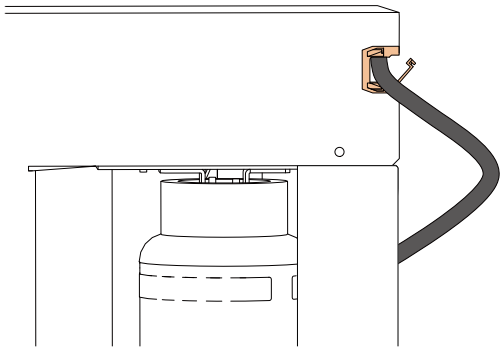
8. Remove the screw.

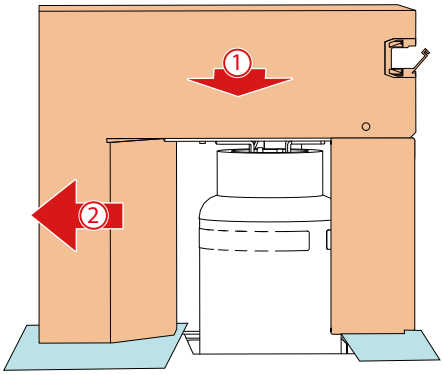


9. Release the cable from the clamp. Lift up the back of the cover and pull it out carefully (in the direction of the arrow marked "1"). Then, slide the cover to the left (in the direction of the arrow marked "2").

CAUTION

Place something such as media under the cover to prevent the machine from being scratched.

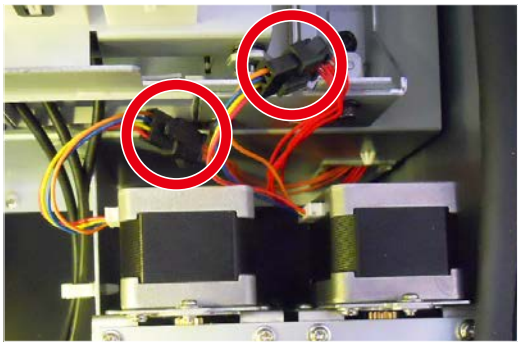




For serial No. ZDN1561 or earlier, move on to step 10. For serial No. ZDN1562 or later, move on to step 19.

Serial No. ZDN1561 or earlier

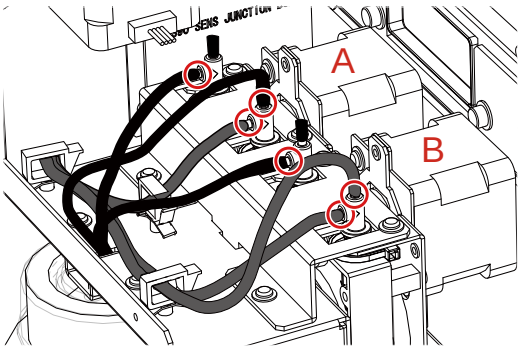
10. Unplug the connectors from the pump motors.



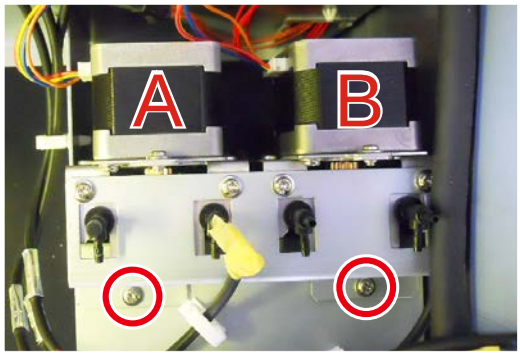
11. Remove all the ink tubes from the pumps.

CAUTION

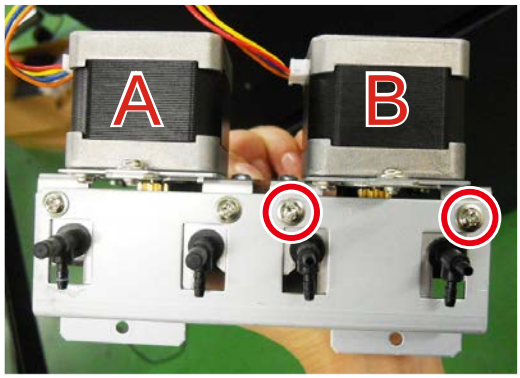
Put labels on the ink tubes to identify which ink tube is connected to which adapter.



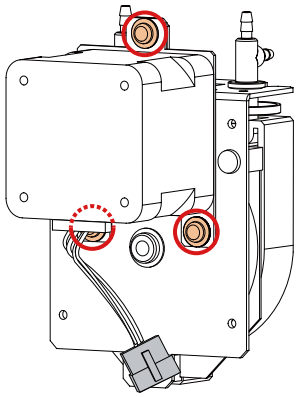
12. Remove two screws and remove the pump unit together with the stay.



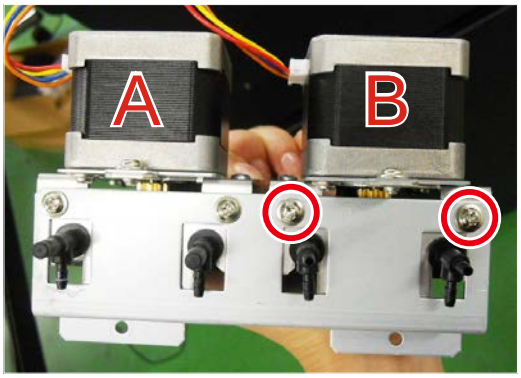
13. Remove two screws that secure the pump unit.



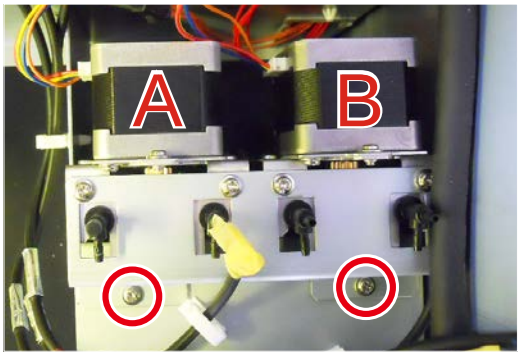
14. Remove three screws, then fix a new pump to the motor. Replace the other pump in the same manner.



15. Tighten two screws to secure the pump unit.



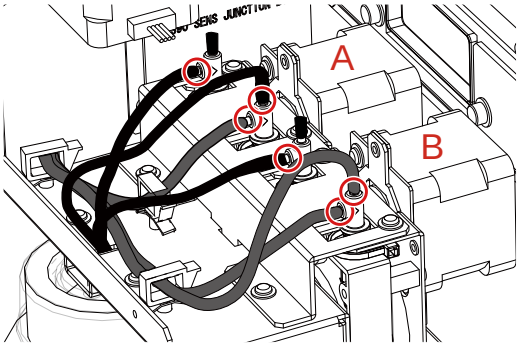
16. Tighten two screws to secure the pump unit together with the stay.



17. Connect all the ink tubes to the pumps.

CAUTION

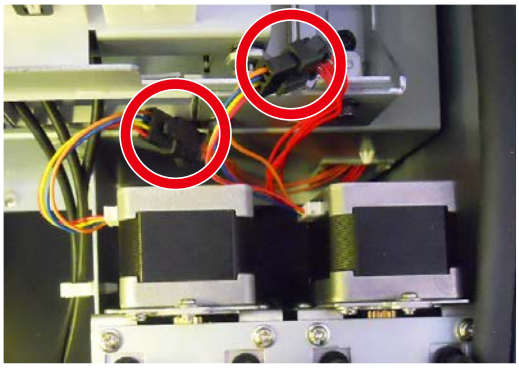
- Connect the ink tubes from the cap top to the left joint, and connect the ink tubes from the drain side to the right joint.
- Insert the ink tubes firmly. Make sure that the ink tubes at the drain side are inserted into the bottle cap.



18. Plug the connectors of the pump motors, and move on to step 24.

CAUTION

Be careful not to connect a wrong cable. Connect the red cable to the pump A, and the orange cable to the pump B.

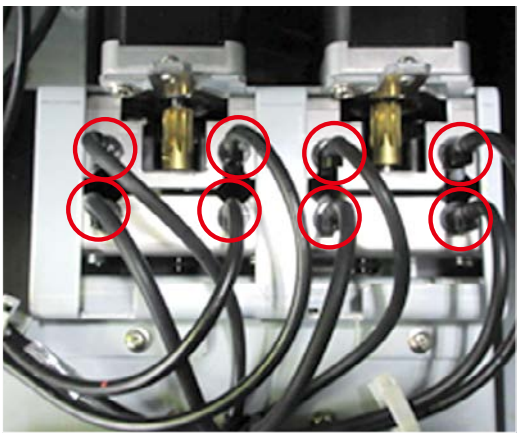


Serial No. ZDN1562 or later

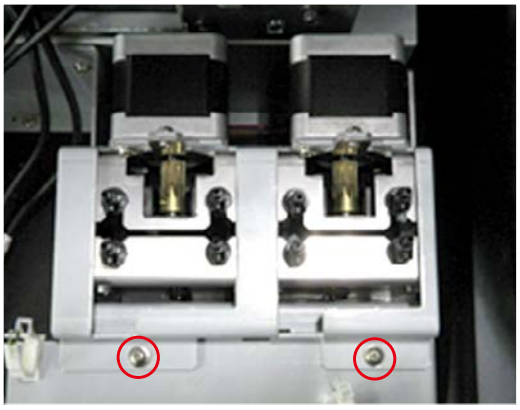
19. Disconnect the all tubes connected to the pumps.

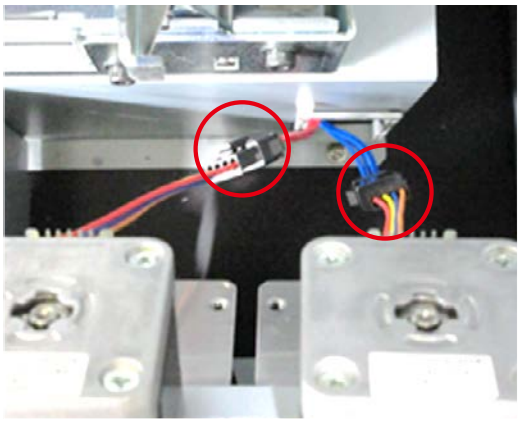
CAUTION

Put labels to the ink tubes to identify which tube is connected to which adapter.

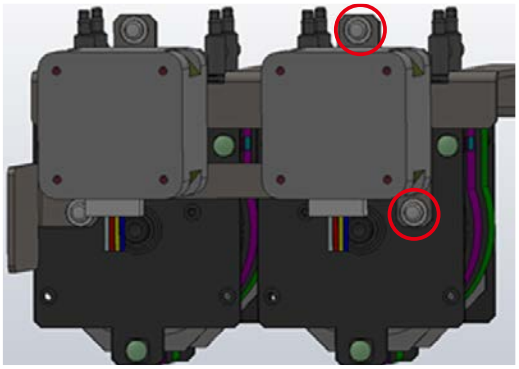


20. Remove 2 screws to remove the pump unit together with the stay. Unplug 2 connectors of the motors.





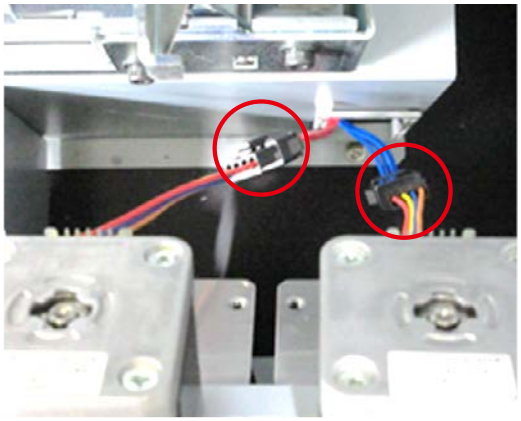
21. Remove 2 screws to remove the pump unit. Then attach a new pump unit to the motor.

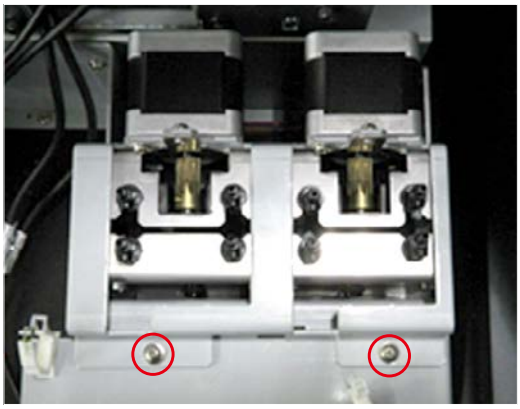


22. Plug the connectors of the motors, and attach the pump unit together with the stay.

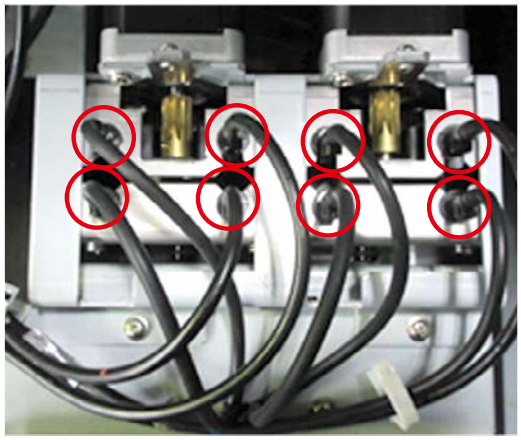
CAUTION

Be careful not to connect a wrong cable. Connect the red cable to the pump A, and the orange cable to the pump B.

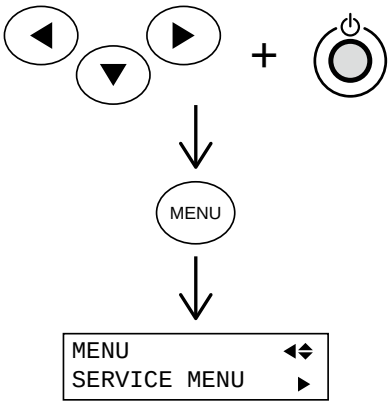




23. Connect the all tubes to the pumps.

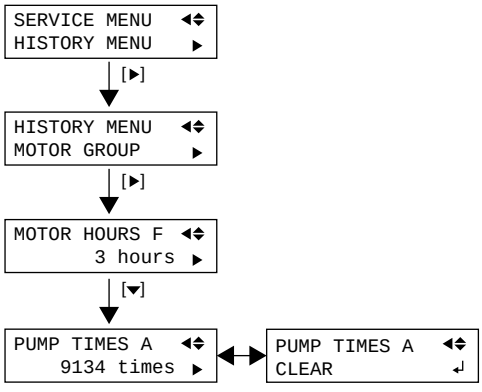


24. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.

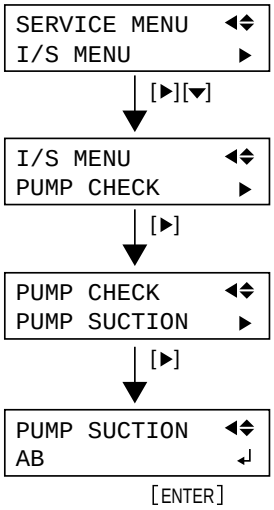


Clearing the Pump Rotation Times

25. Select [SERVICE MENU] > [HISTORY MENU] > [MOTOR GROUP] > [PUMPTIMES] > [CLEAR], and press the [ENTER] key.



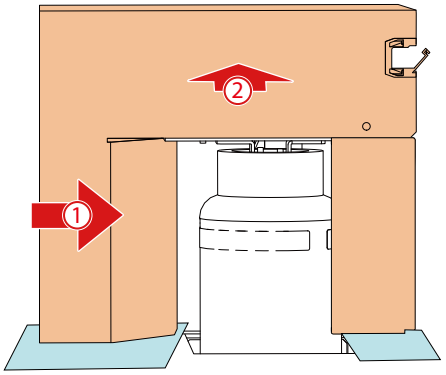
26. Select [SERVICE MENU] > [I/S MENU] > [PUMP CHECK] > [PUMP SUCTION] > [AB], and press the [ENTER] key. Visually check that the pump works properly.

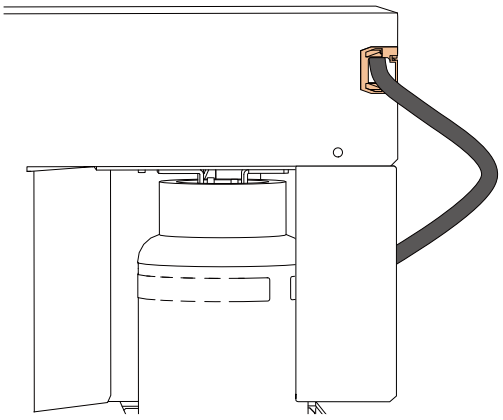


27. Carefully slide the cover to the right (in the direction of the arrow marked "1"). Then, push the cover to the rear as far as they will go (in the direction of the arrow marked "2"). Fasten the cable with the clamp, and then fix the cover.

CAUTION

Place something such as media under the cover to prevent the machine from being scratched.

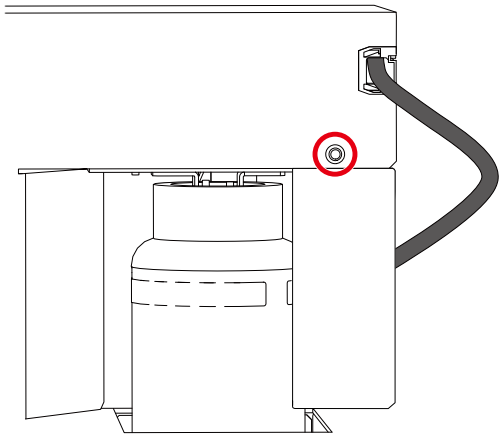




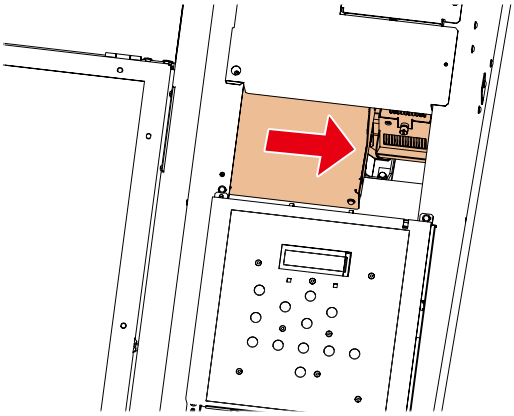
28. Tighten the screw.

CAUTION

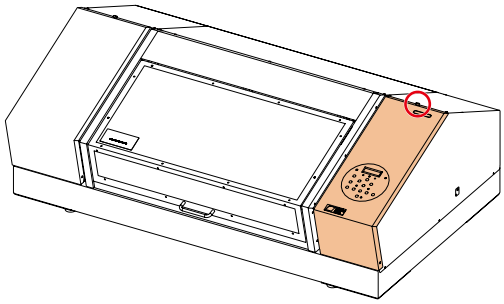
- Be careful not to get the ink tubes caught when securing the cover.
- Be careful not to get the drain tubes caught when installing the drain bottle.



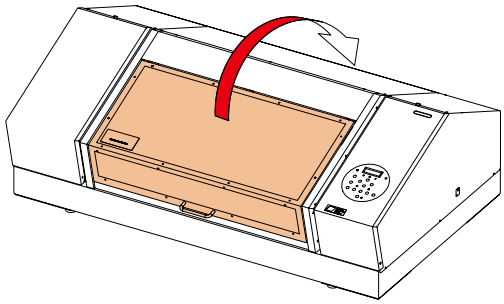
29. Move the head carriage to the lock position.



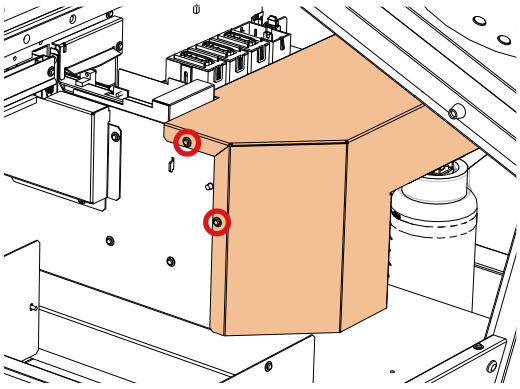
30. Tighten the screw to secure the cover.



31. Open the cover.



32. Tighten two screws to secure the cover.



33. (End of procedure)

Circulation Pump Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver
1.5 mm hexagonal wrench

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Circulation pump replacement**
2. **Clearing the pump rotation time**

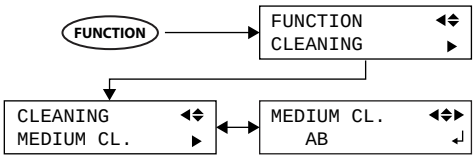
Referential time for work

Contents of work	Time
Circulation pump replacement	20 min.
Clearing the pump rotation time	5 min.

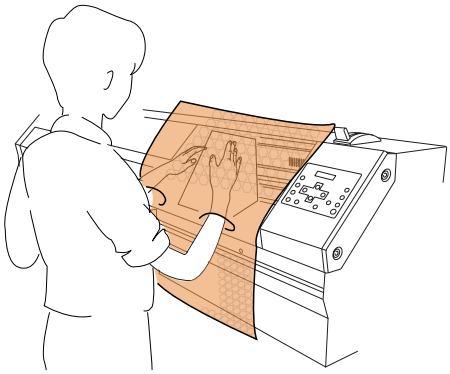
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

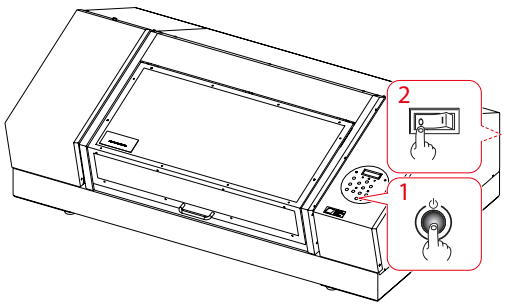


- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

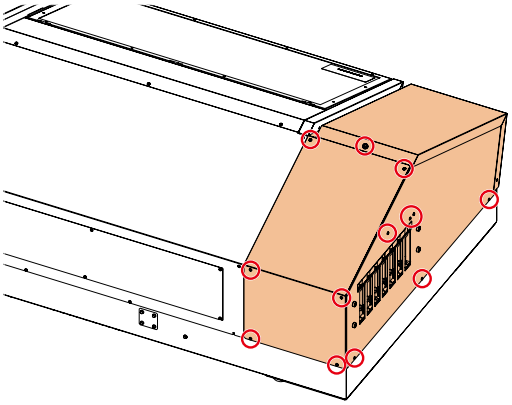


1. **Turn off the sub power SW, and then turn off the main power SW.**

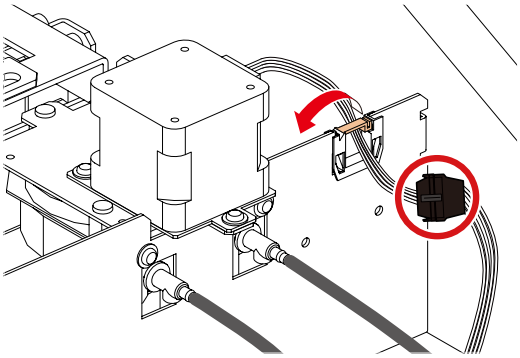
   1. Sub power SW
   2. Main power SW



2. Remove 13 screws that secure the covers.



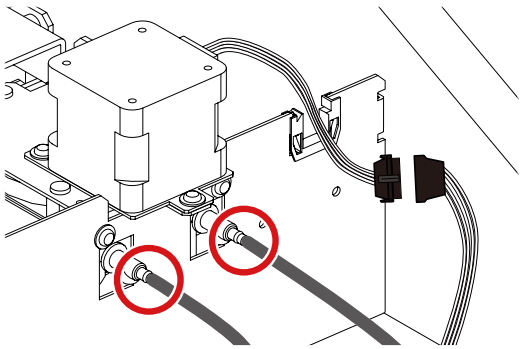
3. Release the connector from the clamp.



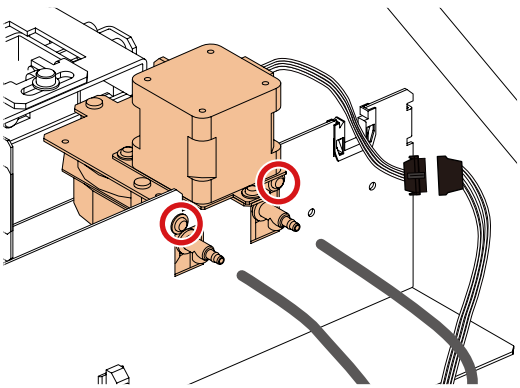
4. Detach the ink tubes from the pump.

CAUTION

Wrap the tip of the ink tubes with something such as tape to prevent ink from coming out.

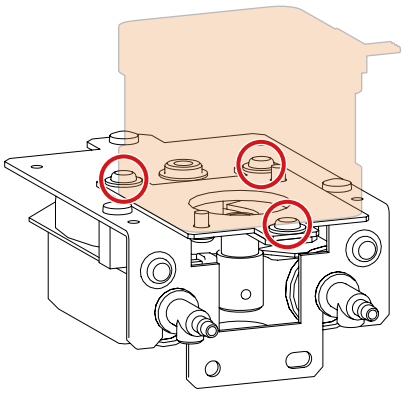


5. Remove two screws that secure the pump unit.

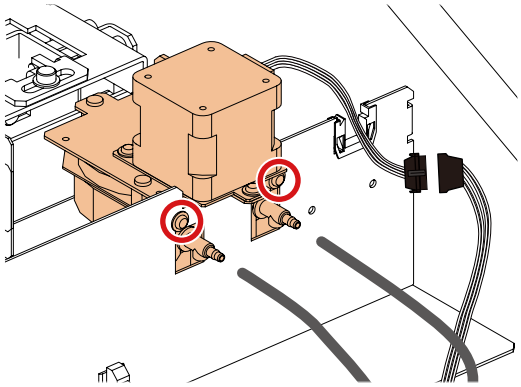


Circulation pump replacement

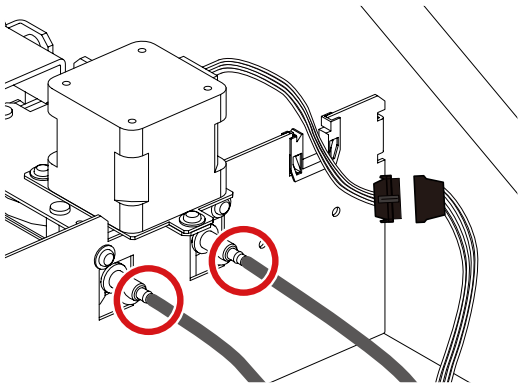
6. Remove three screws. Then, attach a new pump to the motor.



7. Tighten two screws to secure the pump unit.

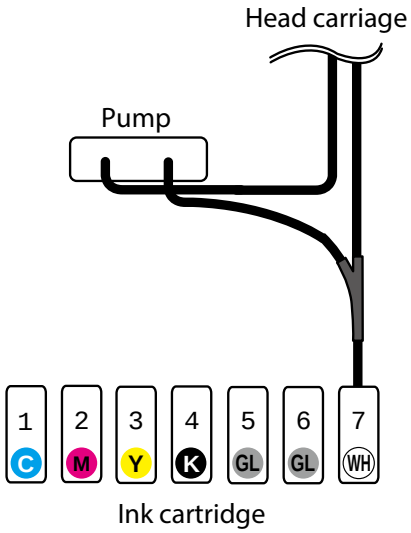


8. Attach the ink tube from the ink cartridge and the ink tube from the head carriage to the pump.

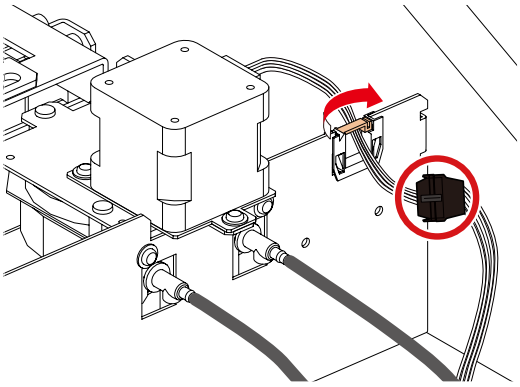


CAUTION

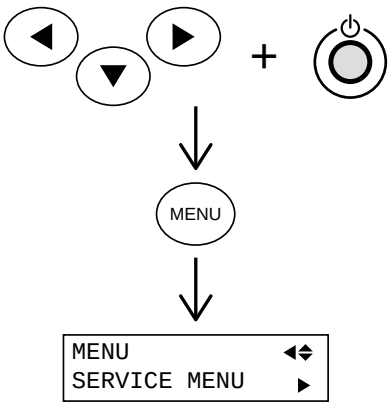
- Insert the tubes as far as they will go.
- Wrongly connected tube does not circulate the ink correctly. As indicated in the rear and top view, connect the tube from the head carriage to the right connector of the pump, and connect the tube from the Y tube joint to the left connector of the pump.



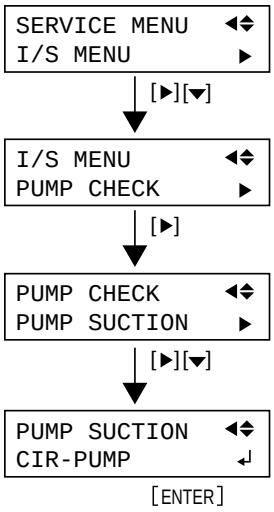
9. Plug the connector, and fasten it with the clamp.



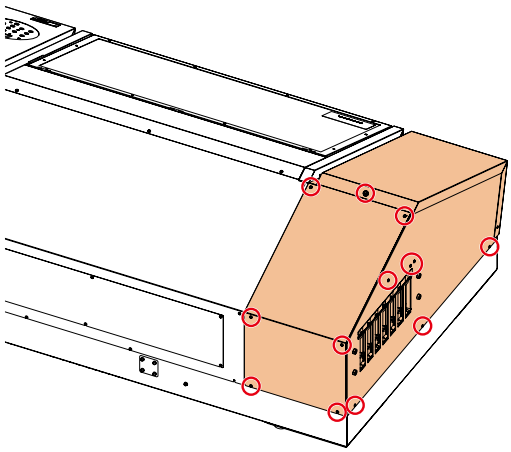
10. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



11. Select [SERVICE MENU] > [I/S MENU] > [PUMP CHECK] > [PUMP SUCTION] > [CIR-PUMP], and press the [ENTER] key. Visually check that the pump works properly.



12. Tighten 13 screws to secure the covers.



13. (End of procedure)

Ink Tube Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver
2.5 mm hexagonal wrench
Waste cloth
Tape
Scissors

Special Tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Ink tube replacement**

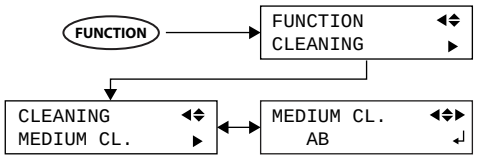
Referential time for work

Contents of work	Time
Ink tube replacement	90 min.

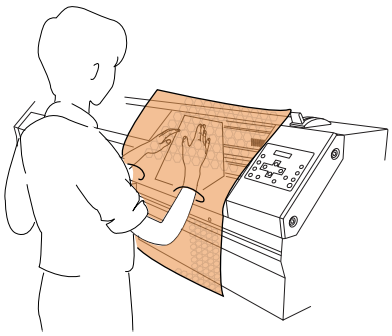
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

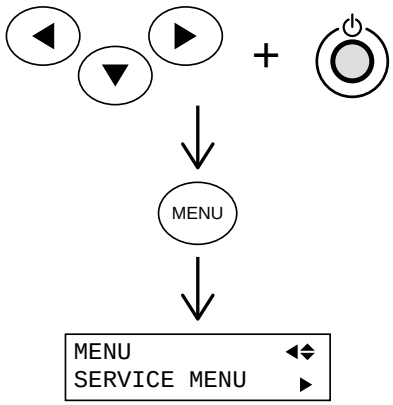


- Cut the ink tubes to the following length. Put a color label on the end of each ink tube so that you will know which ink tube to connect to which damper.

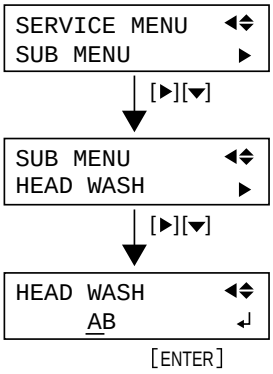
Tube length

No.1：1967±5mm
No.2：1990±5mm
No.3：1965±5mm
No.4：1930±5mm
No.5：1945±5mm
No.6：1997±5mm
No.7：1985±5mm
No.8：2015±5mm

1. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.

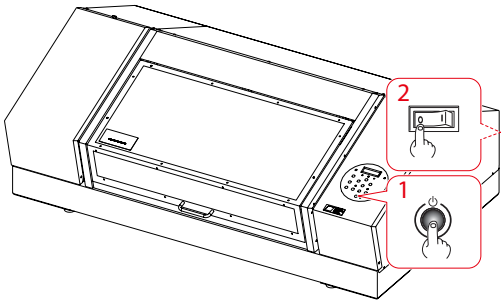


2. Select [SERVICE MENU] > [SUB MENU] > [HEAD WASH]. Select the group of the target ink tube, then perform head wash.

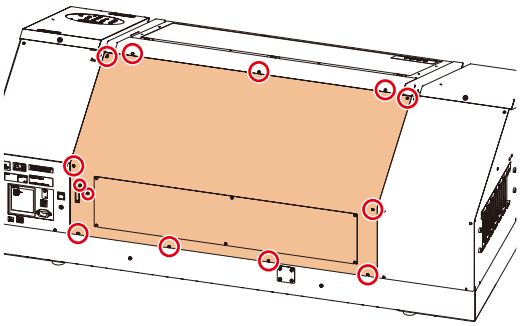


3. Turn off the sub power SW, and then turn off the main power SW.

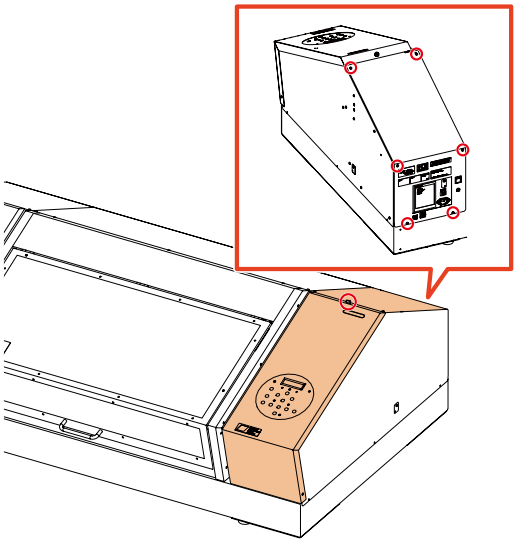
1. Sub power SW
2. Main power SW



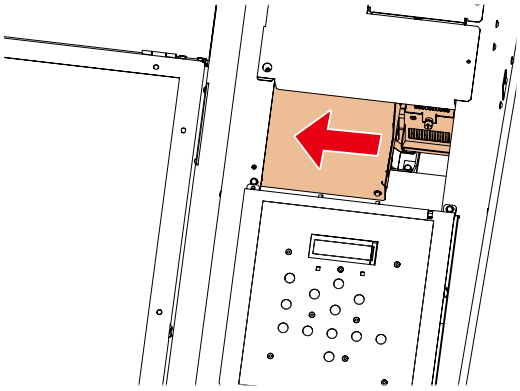
4. Remove 13 screws that secure the cover.



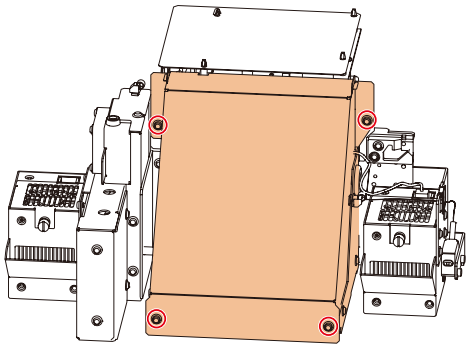
5. Remove seven screws that secure the covers.



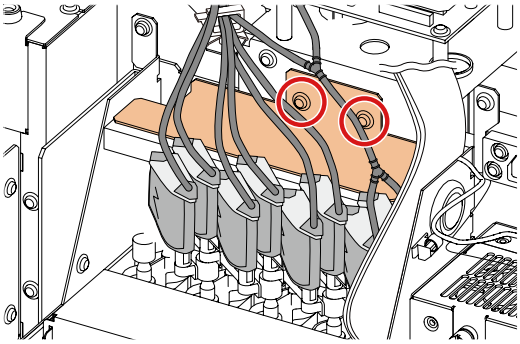
6. Unlock the head carriage, and move it to the left by hand.



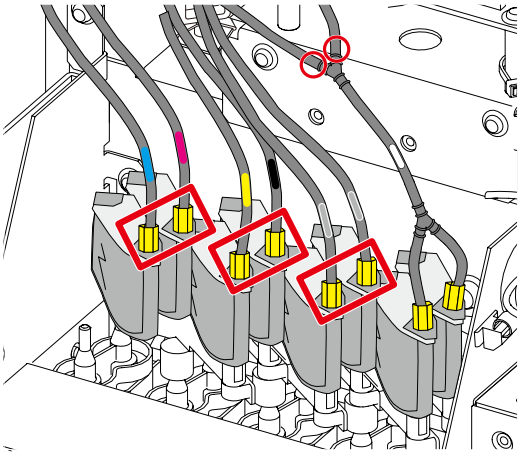
7. Remove four screws that secure the carriage cover.



8. Remove two screws that secure the damper plate.

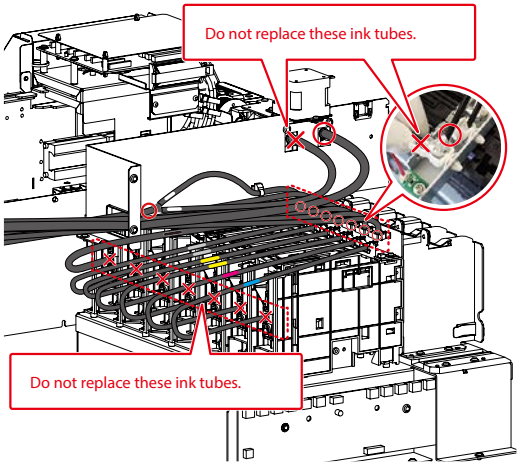


9. Remove the ink tubes from the damper joints and the Y-tube joints. Put tape on the tip of the ink tubes to prevent ink from coming out.

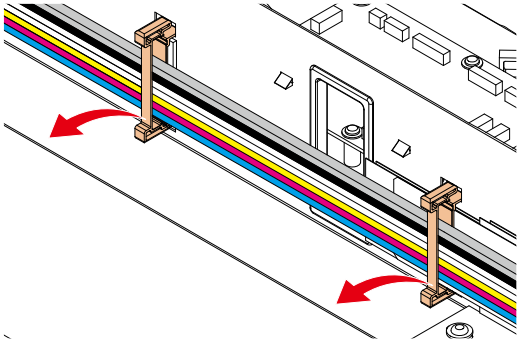


10. Release the ink tubes from the clamps.

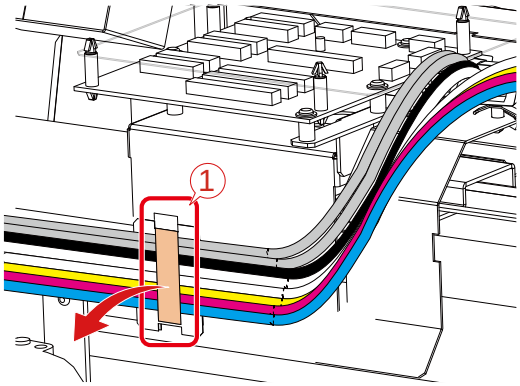
11. Remove the ink tubes (ink cartridge side) from the joint adapters, the Y-tube joint, and the circulation pump. Then, put clear tape on the tip of the ink tubes to prevent ink from coming out.



12. Remove the tube guides bundling the ink tubes, and pull the ink tubes.



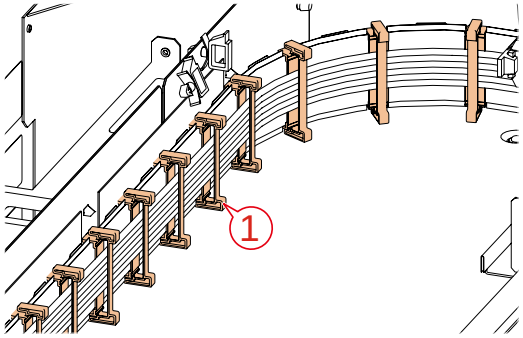
13. Remove the tube guide, which is bundling the ink tubes and the ribbon cables, from the head carriage.



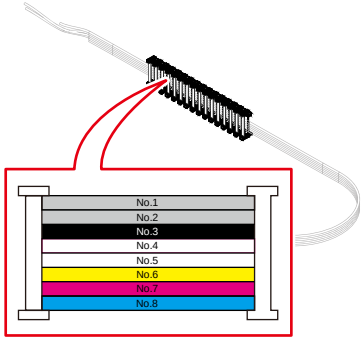
14. **Remove the ink tubes and the tube guides from the holder cable plate and the support rail frame.**

NOTE

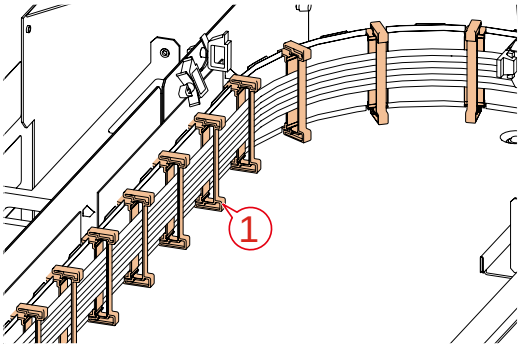
Moving the head carriage to the right side of the machine will make it easier to remove the ink tubes.



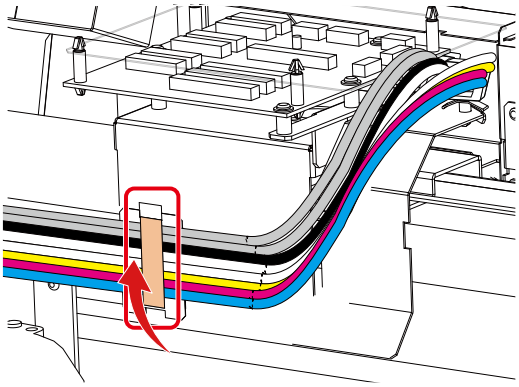
15. **Remove the tube guides from the ink tubes and attach them to the new ink tubes.**



16. **Place the ink tubes and the tube guides on the linear rail.**



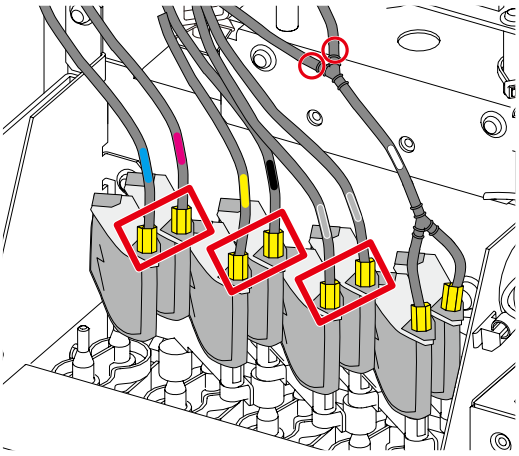
17. **Attach the tube guide to the head carriage together with the ink tubes.**



NOTE

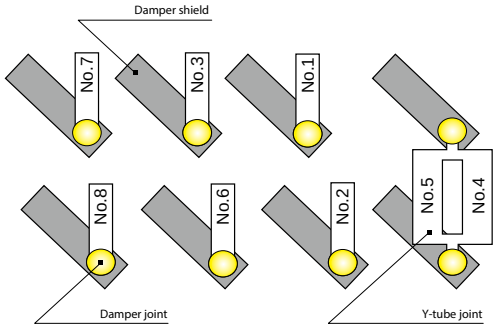
The ink tube length between the tube guide in the figure and the damper should be as follows.

18. **Connect the ink tubes to the damper joints and the Y-tube joints.**



CAUTION

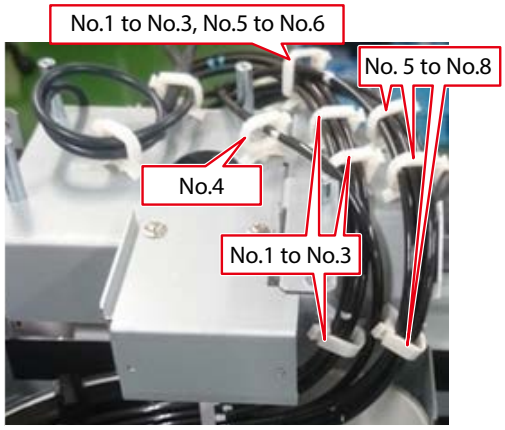
When you connect the ink tubes, the ink tubes may bend. Do not use bent ink tubes.



19. Bundle the ink tubes with the clamps while pushing the ink tubes backward so as not to locate the front of the head carriage.

CAUTION

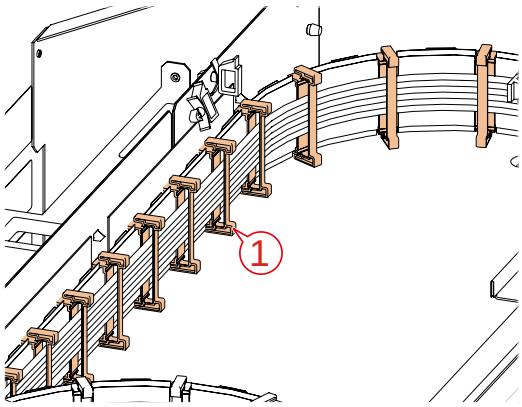
If you do not bundle the ink tubes, they will pull up the print head, and the print head will be tilted.



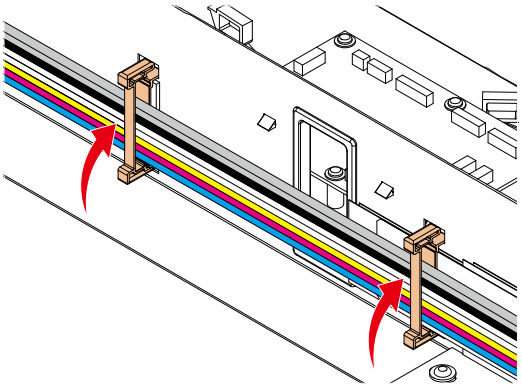
20. Attach the ink tubes and the tube guides to the holder cable plate and the support rail frame.

NOTE

Moving the head carriage to the right side of the machine will make it easier to remove the ink tubes.



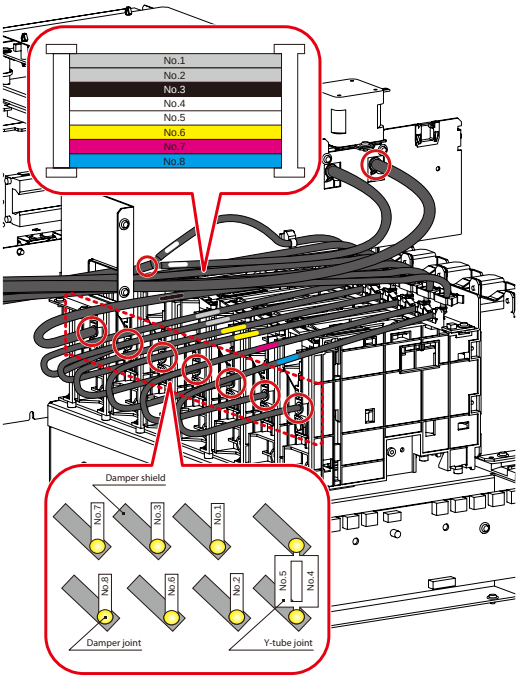
21. Bundle the ink tubes with the tube guides.



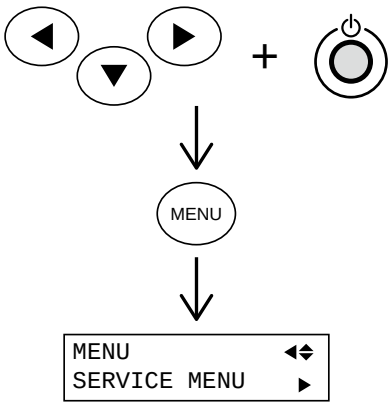
22. Connect the ink tubes to the joint adapters, the Y-tube joints, and the circulation pump.

CAUTION

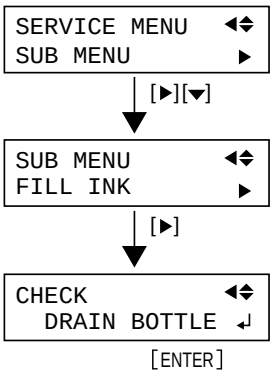
When you connect the ink tubes, the ink tubes may bend. Do not use the bent ink tube.



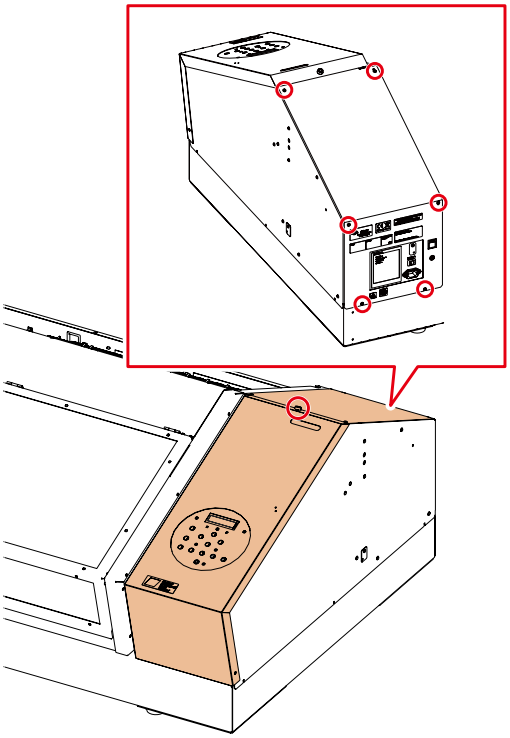
23. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



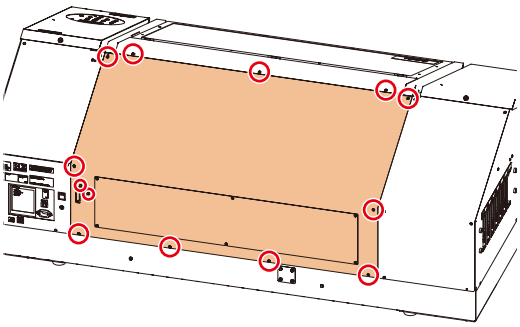
24. Select [SUB MENU] > [FILL INK], and perform the ink filling in accordance with the on-screen instructions.



25. Tighten seven screws to secure the covers.



26. Tighten 15 screws to secure the cover.



27. (End of procedure)

Ribbon Cable (Main Board to Carriage Board) Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver
3.0 mm hexagonal wrench

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Ribbon cable (main board to carriage board) replacement**
2. **Linear encoder board replacement**

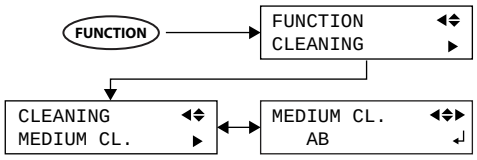
Referential time for work

Contents of work	Time
Ribbon cable (main board to carriage board) replacement	40 min.
Linear encoder board replacement	3 min.

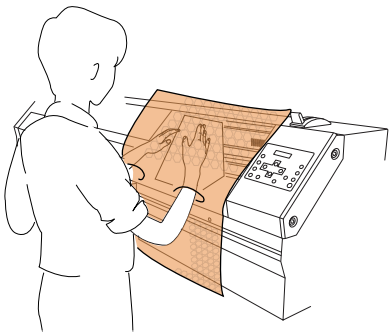
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

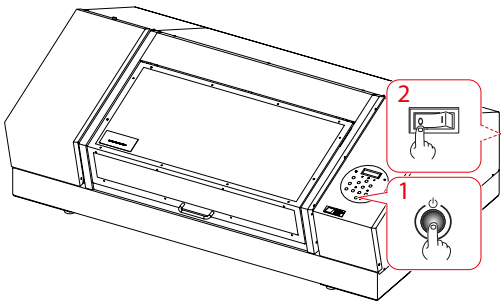


1. **Turn off the sub power SW, and then turn off the main power SW.**

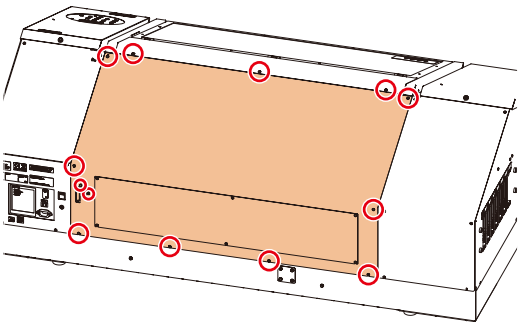
CAUTION

You do not need to perform [PUMP UP].

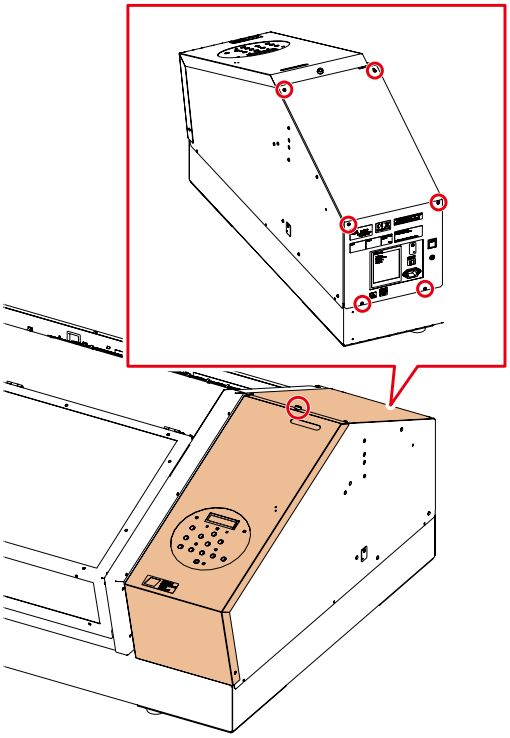
1. Sub power SW
2. Main power SW



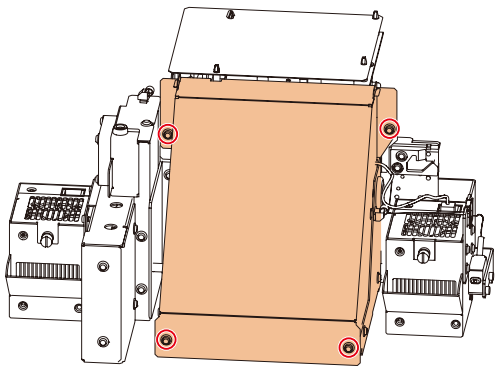
2. Remove 13 screws that secure the cover.



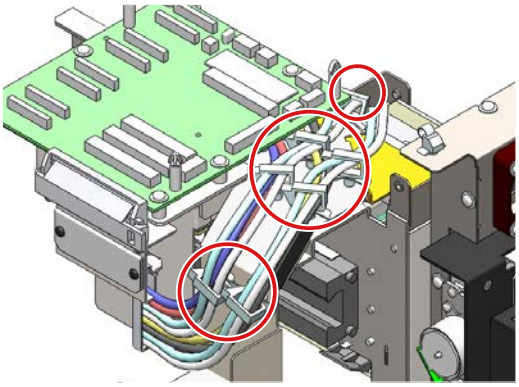
3. Remove seven screws that secure the covers.



4. Remove four screws that secure the carriage cover.

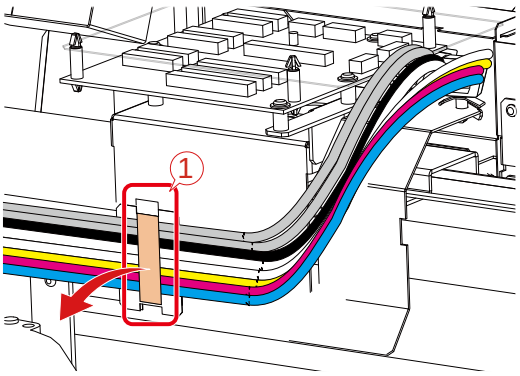


5. Open the clamps.

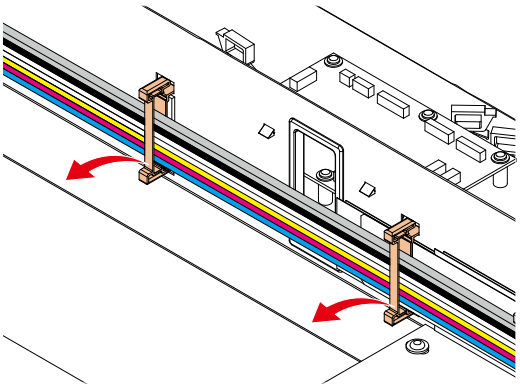


6. Remove the tube guide, which is bundling the ink tubes and the ribbon cables, from the head carriage.

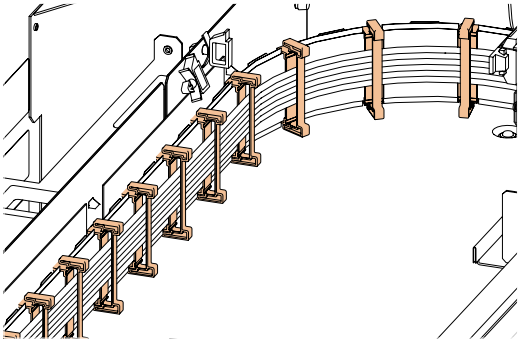
1. Tube guide



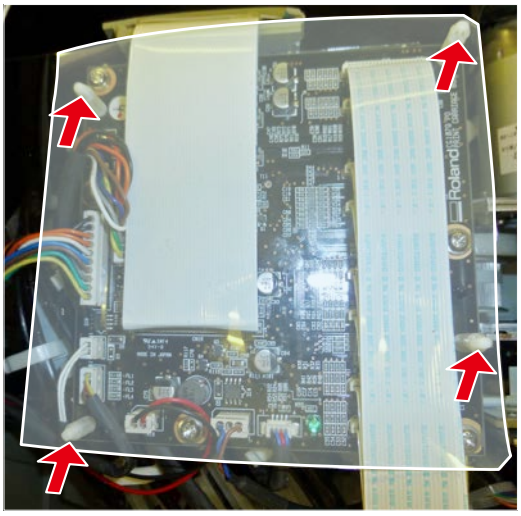
7. Remove the tube guides bundling the ink tubes, and pull the ink tubes.



8. Remove the ink tubes with the tube guides from the holder cable plate and the support rail frame.



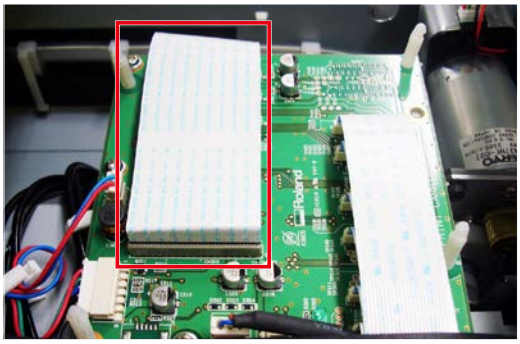
9. Remove the carriage board cover.



CAUTION

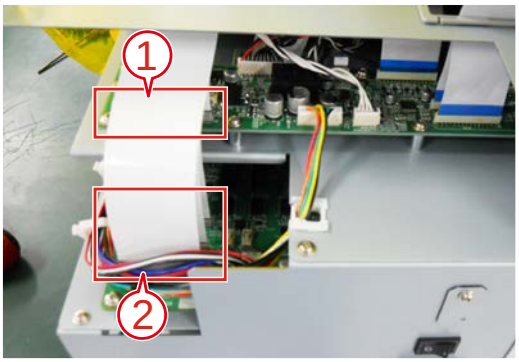
Remove the carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.

10. Remove the ribbon cables from the carriage board.



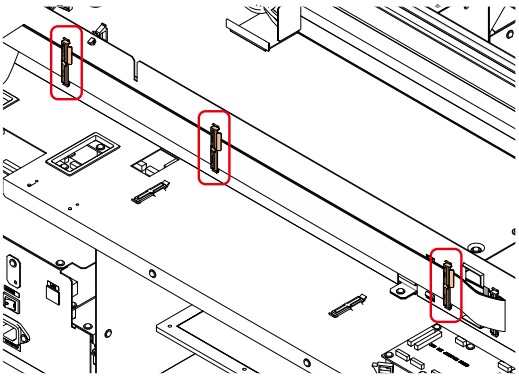
11. Remove the ribbon cables from the signal junction board and the main board.

1. Signal junction board CN25
2. Main board CN14, CN15, CN17

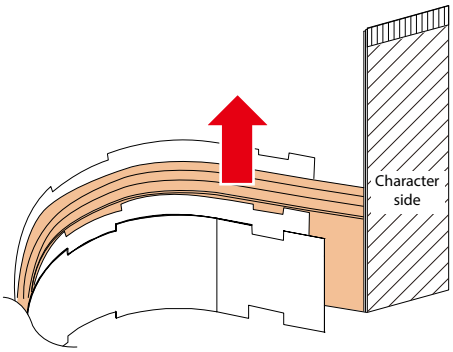


12. Remove the clamps.

Rear view



13. Disconnect the ribbon cables from the machine.

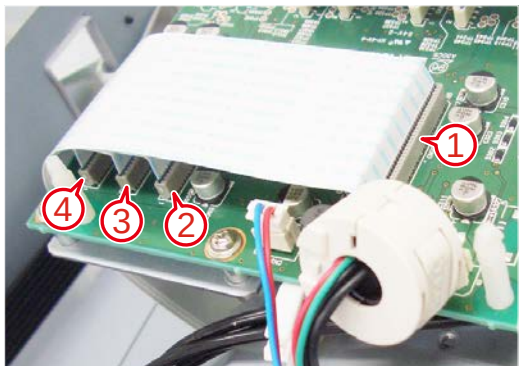


14. **Fold the new ribbon cable by referring the figure below. The position to fold the ribbon cable is different depending on the position to connect the ribbon cable to the carriage board.**

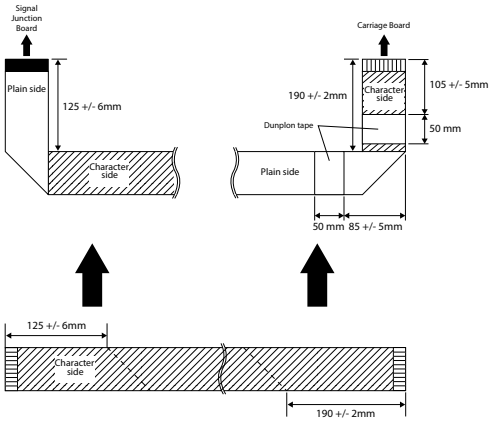
CAUTION

There is no difference between left and right direction.

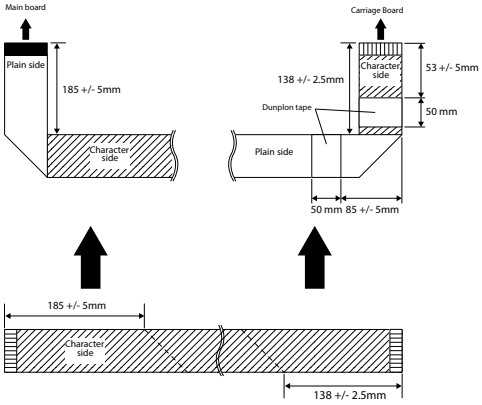
1. No.1 ribbon cable
2. No.2 ribbon cable
3. No.3 ribbon cable
4. No.4 ribbon cable



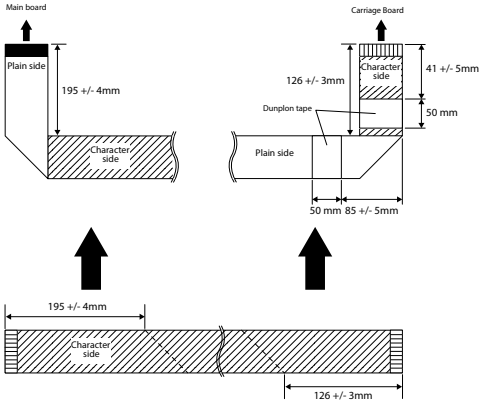
No.1 ribbon cable



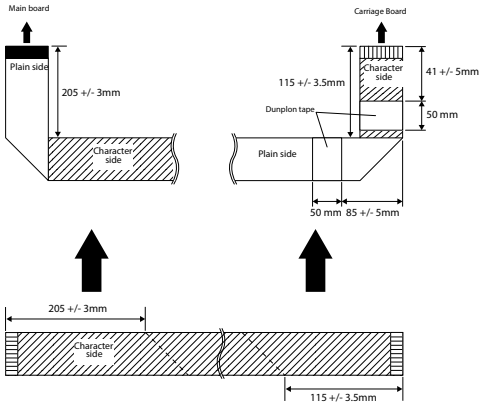
No.2 ribbon cable



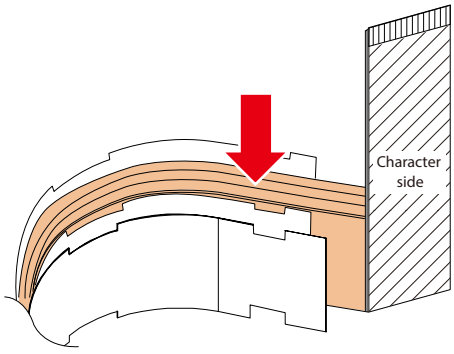
No.3 ribbon cable



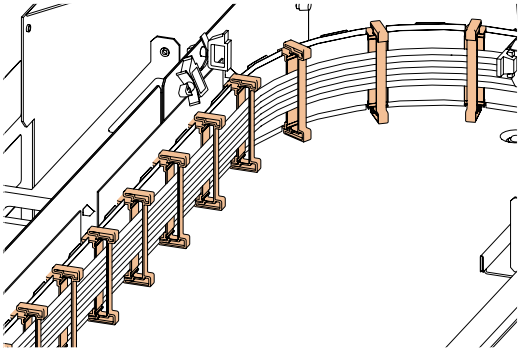
No.4 ribbon cable



15. **Locate the ribbon cables between the cable holders.**



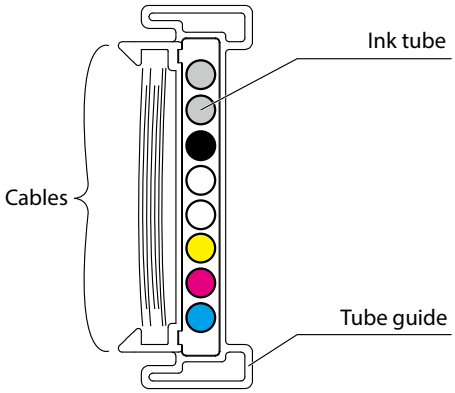
16. Attach the ink tubes with the tube guides to the holder cable plate and the support rail frame.



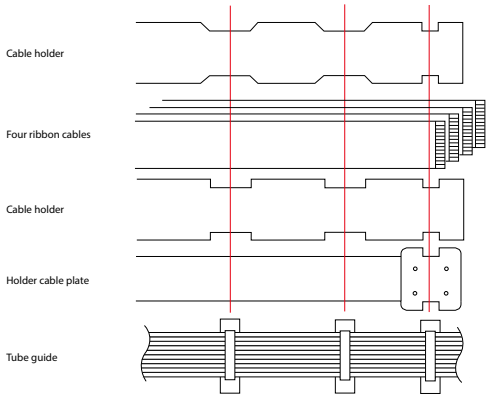
CAUTION

Confirm that the cables fit in the grooves of the tube guides.

Cross section

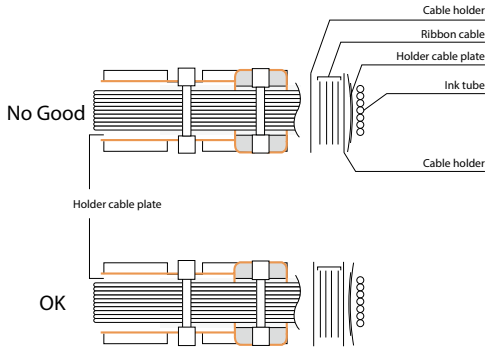


17. Confirm the ribbon cables, the cable holders, the holder cable plate to the tube guides by referring the following figures.

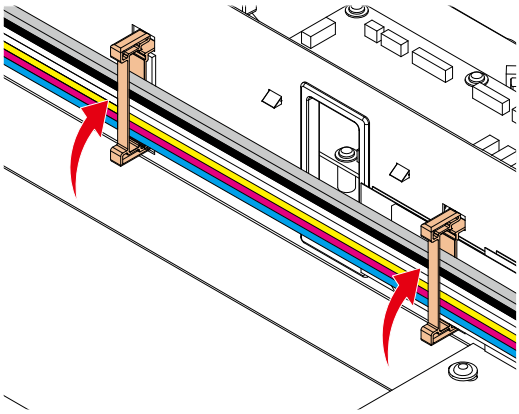


18. Confirm that the attaching direction of the holder cable plate is correct.

Cross section



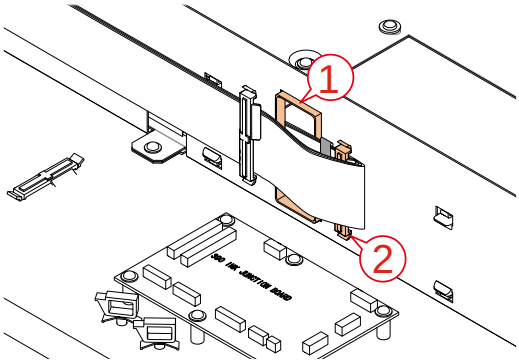
19. Attach the ink tubes with the tube guides.



20. Pull out the ribbon cables from the bush and bundle them with the clamp.

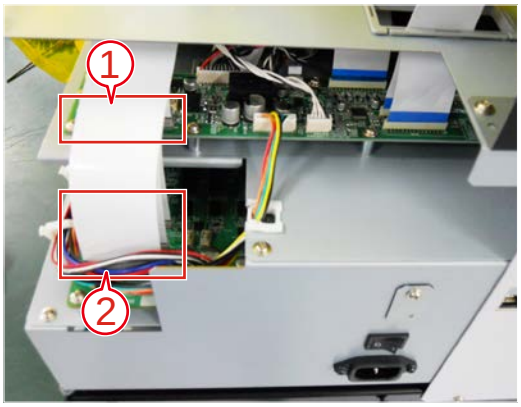
Rear view

1. Bush
2. Clamp



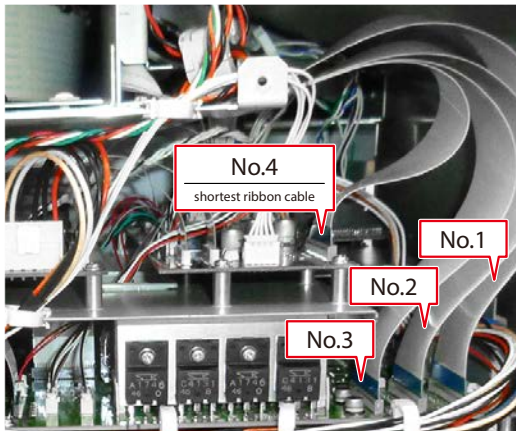
21. **Connect the ribbon cables to the main board and signal junction board.**

1. Signal junction board CN25
2. Main board CN14, CN15, CN17



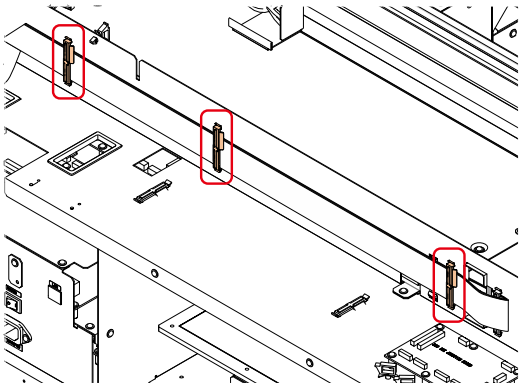
CAUTION

Connect the ribbon cable from No.4 to No.1.

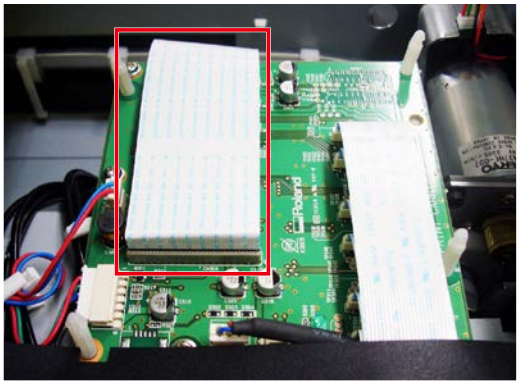


22. **Bundle the ribbon cables with the clamps.**

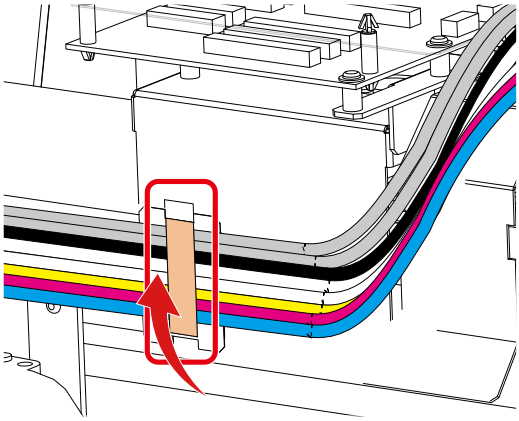
Rear view



23. **Connect the ribbon cables to the print carriage board.**



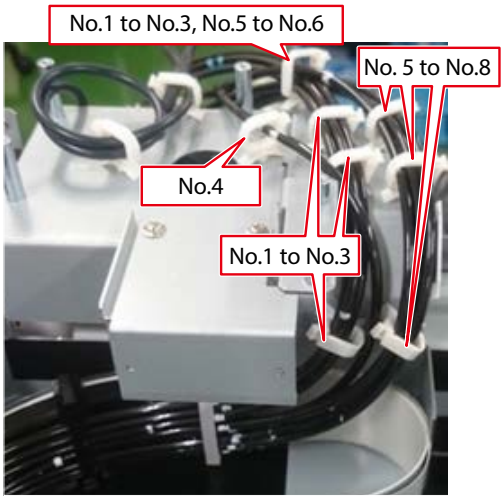
24. **Attach the tube guide to the head carriage together with the ink tubes.**



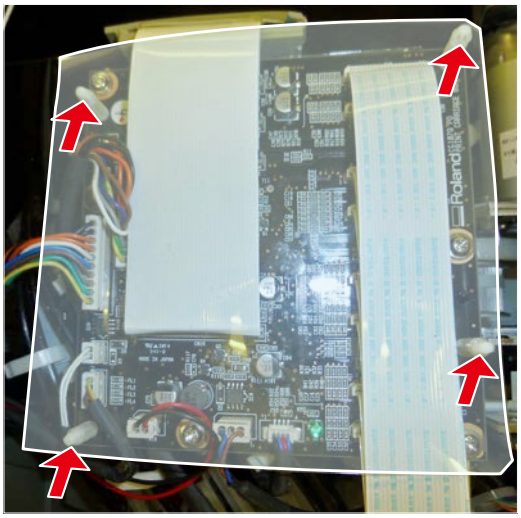
25. **Bundle the ink tubes with the clamps. Bundle the ink tubes with the clamps while pushing them backward so as not to locate the front of the head carriage.**

CAUTION

If you do not bundle the ink tubes as shown in the figure, the ink tubes would pull up the head carriage and the head carriage would be tilted.

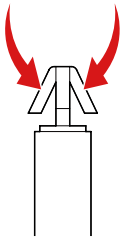


26. Attach the carriage board cover.



CAUTION

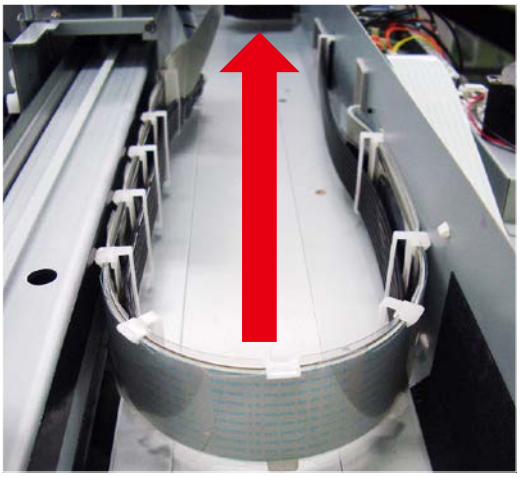
Attach the carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.



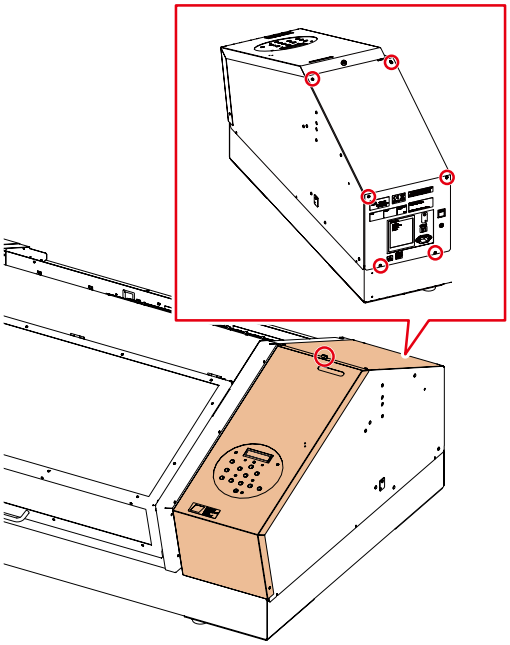
27. Move the head carriage to the width of the machine manually to see if the tube guides move smoothly.

CAUTION

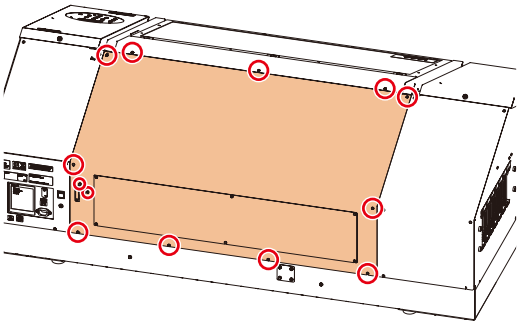
When the tube guides do not move smoothly, remove the ink tubes with the tube guides from the cable holder plate and the support frame. Then, attach the ink tubes with the tube guides again.



28. Tighten seven screws to secure the covers.



29. Tighten 13 screws to secure the cover.



30. (End of procedure)

Main Board Replacement ⚠15

Information

Necessary tools

Software
Peck

General tools
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Main board replacement**

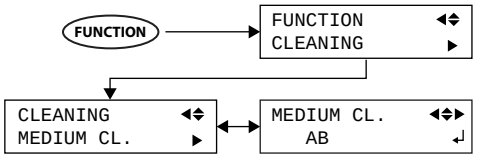
Referential time for work

Contents of work	Time
Main board replacement	40 min.

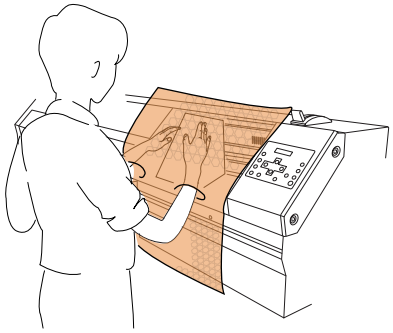
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.



Board layout (inside the cover)

First board stay

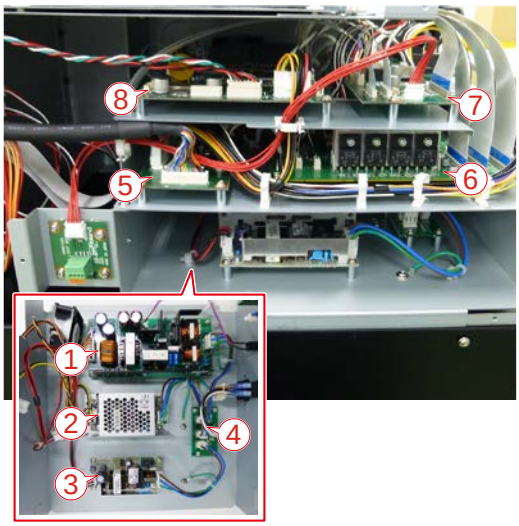
1. SW power supply (41V)
2. SW power supply (24V)
3. SW power supply (5V)
4. AC junction board

Second board stay

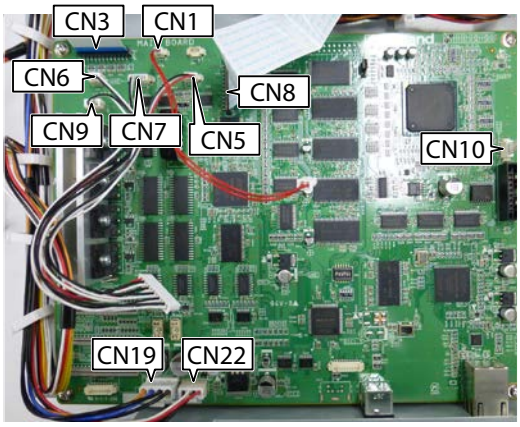
5. DC junction board
6. Main board

Third board stay

7. Signal junction board
8. Servo board

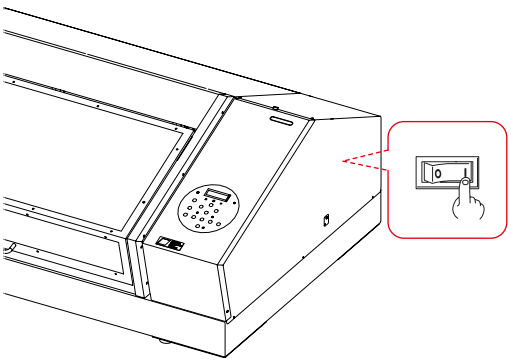


Main board connector layout



Removing the Chassis

1. **Turn on the main power SW.**

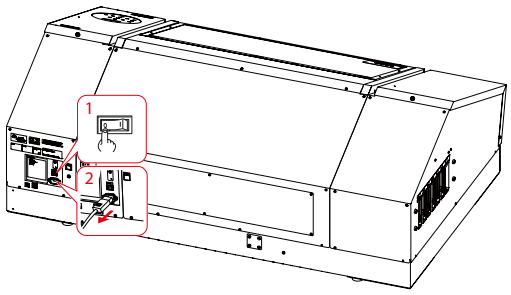


2. **Start Peck.**

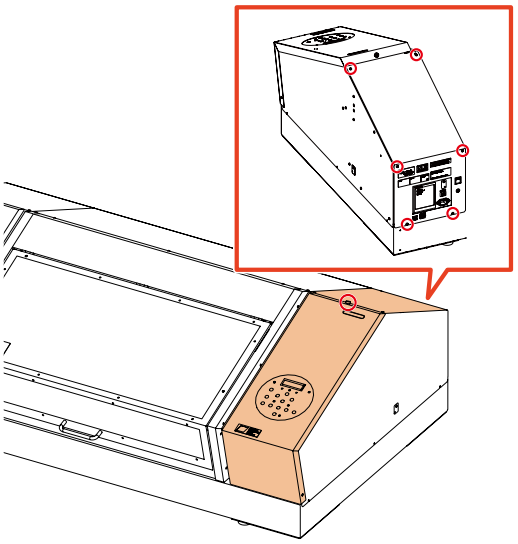
3. **Click [Get Report] and [Get Parameters] to get the report and the parameters.**

4. **Turn off the main power SW, and unplug the power cord.**

1. Main power SW
2. Power cord

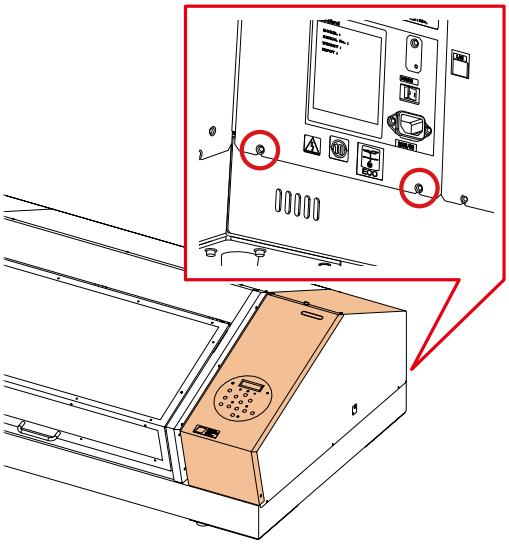


5. **Remove seven screws that secure the covers.**

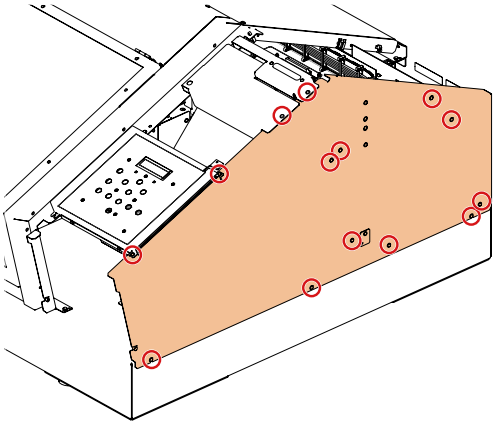


CAUTION

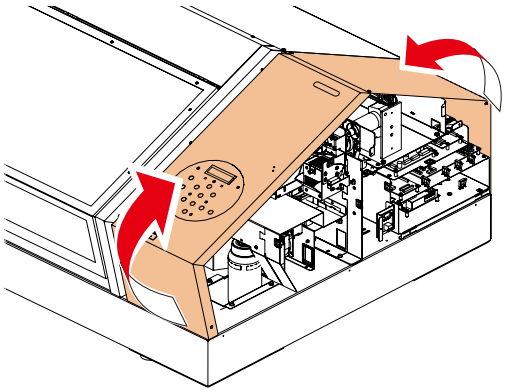
Do not remove the two screws that secure the top cover. Just loosen them.



6. Remove 14 screws that secure the cover.

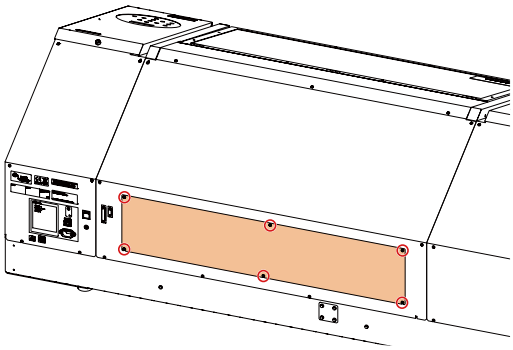


7. Place the covers. Do not tighten the screws yet.

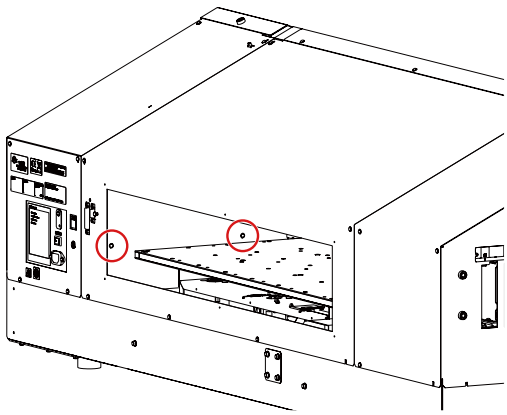


8. Remove six screws that secure the plate.

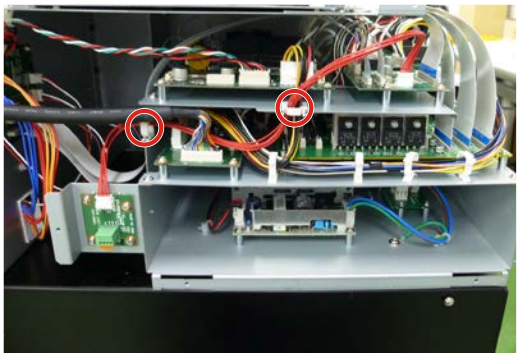
Rear view



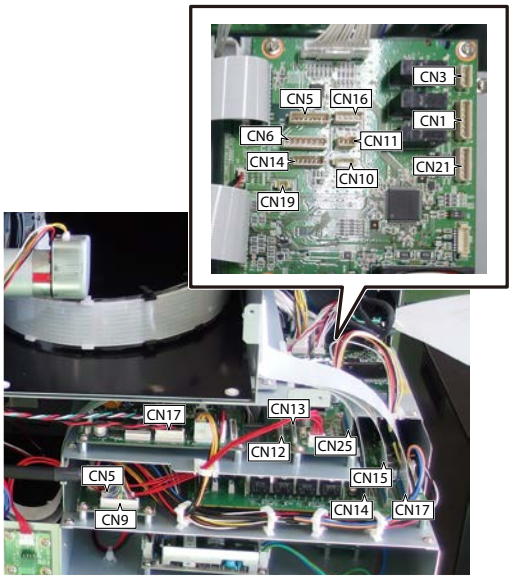
9. Remove two screws.



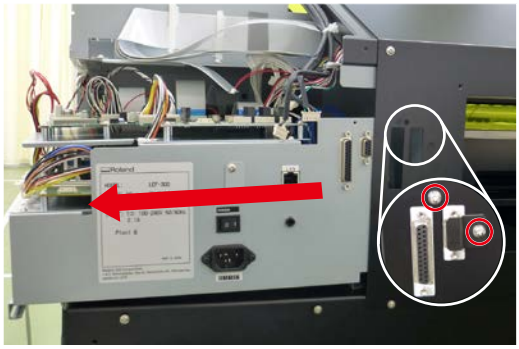
10. Release the cable from the clamps.



11. Unplug the connectors. Disconnect the ribbon cables.

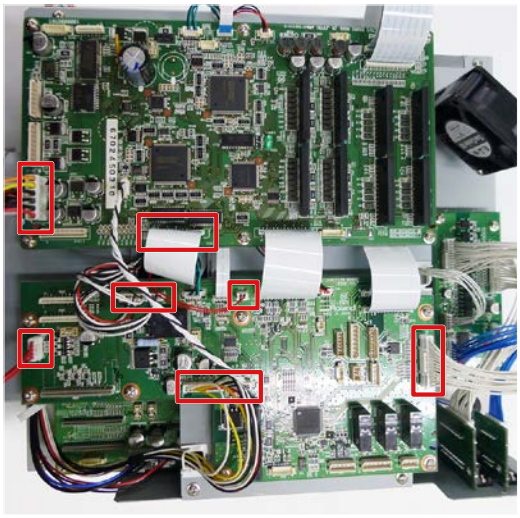


12. Remove two screws, and then pull out the chassis.

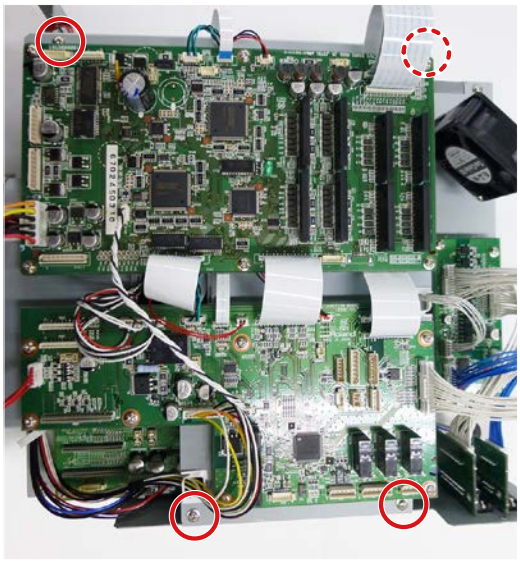


Removing the Third Board Stay

13. Unplug the connectors and disconnect the ribbon cable from the servo board and the signal junction board.

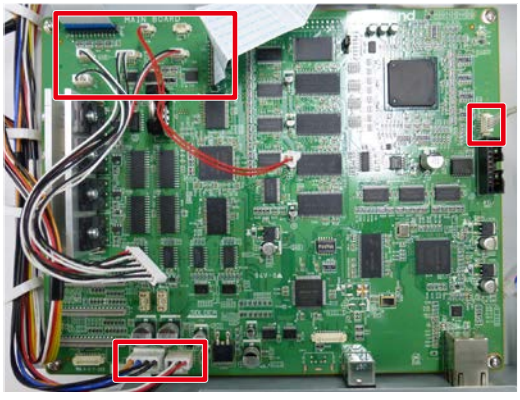


14. Remove four screws that secure the board stay.

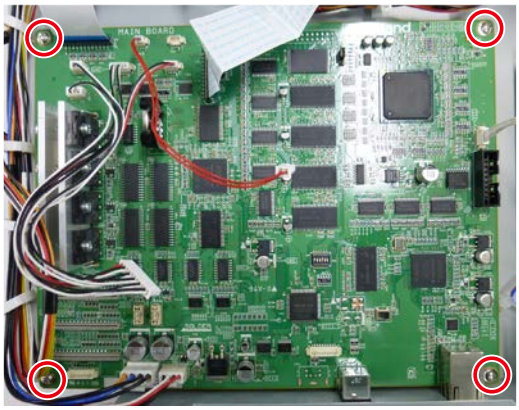


Removing the Main Board

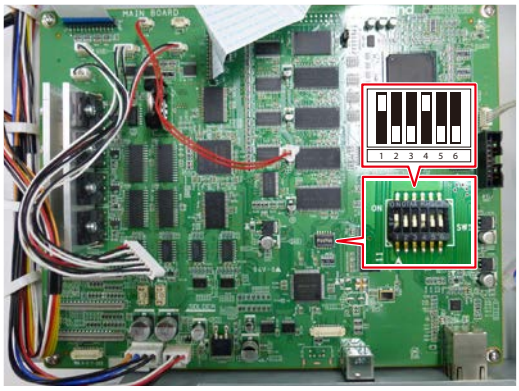
15. Unplug all the connectors.



16. Remove four screws that secure the main board.

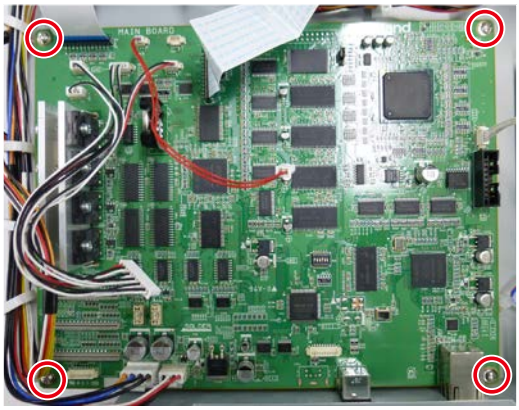


17. Set the DIP SW of the new main board as follows.

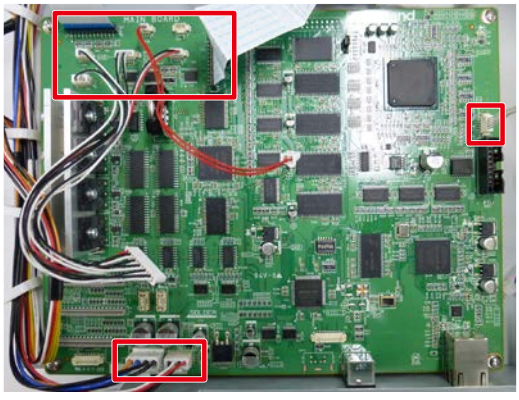


18. Attach the battery and attach four screws to secure the new main board.

☞ Refer to Chapter 1 "Battery Replacement".

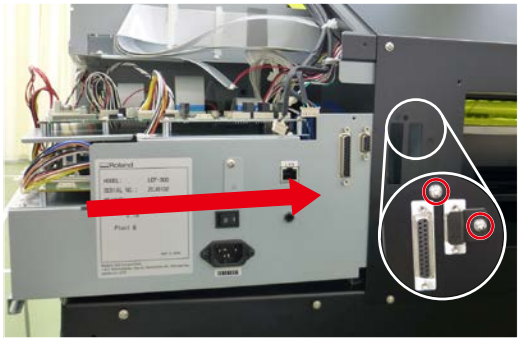


19. Plug all the connectors.

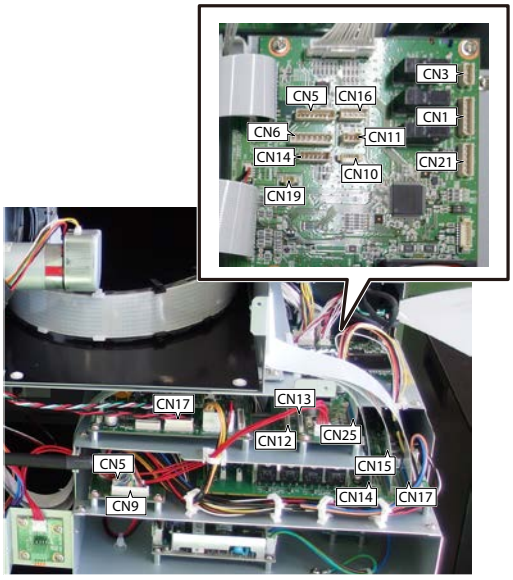


Attaching the Chassis tray

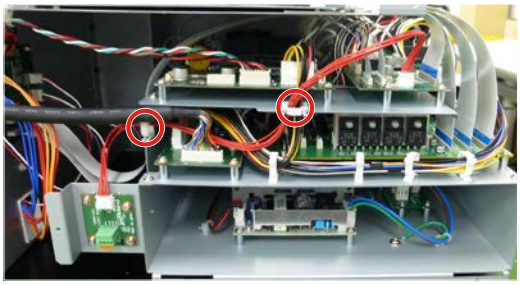
20. Put back the chassis tray to its original position, and tighten two screws.



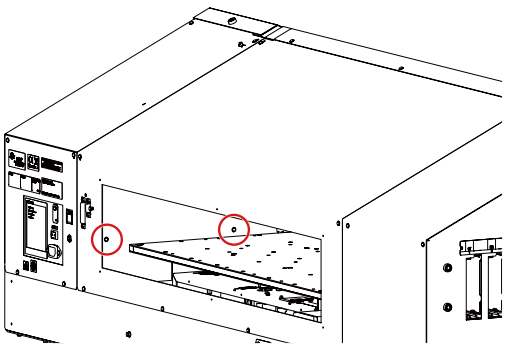
21. Plug all the connectors and connect all the ribbon cables.



22. Fasten the cable with the clamps.

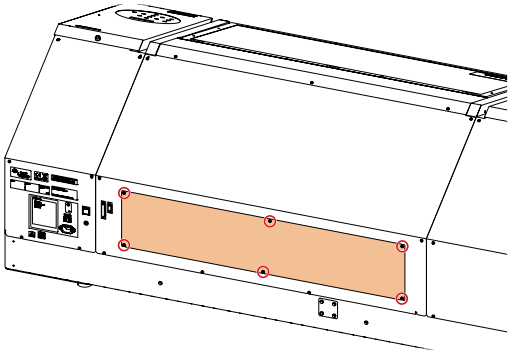


23. Tighten two screws.

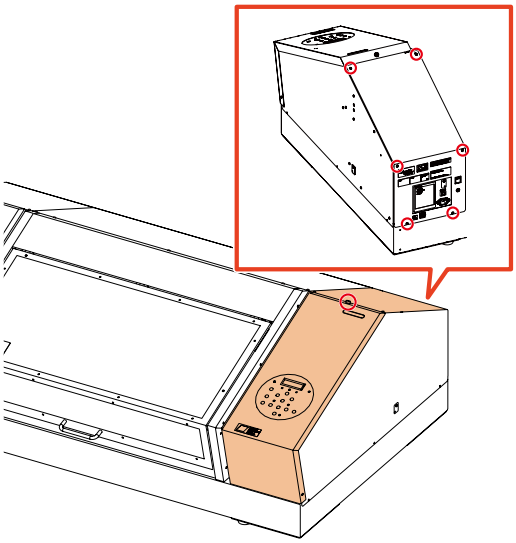


24. Tighten six screws to secure the plate.

Rear view



25. Tighten seven screws to secure the covers.



26. Perform the following work.

26-1. Firmware installation

☞ Refer to Chapter 2 "Firmware Upgrade/Firmware Installation".

26-2. System parameter initialize

☞ Refer to Chapter 2 "Firmware Upgrade/Firmware Installation".

26-3. IP address setting

* Start the machine with the service mode and set in the user menu.

26-4. Put Parameter

☞ Refer to Chapter 2 "Firmware Upgrade/Firmware Installation".

26-5. Time and date setting

* Set the date and time in [SUB MENU] > [CLOCK] > [DATE] > TIME].

* Set [DATE] in the order of [Year/Month/Day].

26-6. Sensor check

* [SERVICE MENU] > [SENSOR CHECK]

27. Perform the following operations if it is not possible to transfer the parameters by Peck.

27-1. Firmware Installation

☞ Refer to Chapter 2 "Firmware Upgrade/Firmware Installation".

27-2. System parameter initialization

☞ Refer to Chapter 2 "Firmware Upgrade/Firmware Installation".

27-3. Time and date setting

☞ Refer to Chapter 2 "Firmware Upgrade/Firmware Installation".

* Set the date and time in the [SUB MENU] > [CLOCK] > [DATE] > [TIME].
* Set the [DATE] in order of [Year/Month/Day].

27-4. IP address setting

* Start the machine with the service mode and set in the user menu.

27-5. Head rank setting

* It can be set in [PRINT MENU] > [HEAD RANK].

27-6. Serial number input

* It can be set in [SUB MENU] > [SERIAL NO.].

27-7. Ink type setting

* It can be set in [SUB MENU] > [CHANGE INKTYPE].

27-8. Cap & wiper check

* It can be set in [IS MENU] > [IS CHECK].

27-9. Sensor check

* It can be set in [SENSOR CHECK].

27-10. Limit position & maximum scan width position initialize

☞ Refer to Chapter 2 "Limit Position & Maximum Scan Width Position Initialize".

27-11. Flushing position adjustment

☞ Refer to Chapter 2 "Flushing Position Adjustment".

27-12. Linear encoder setup

☞ Refer to Chapter 2 "Linear Encoder Setup".

27-13. Print head alignment

☞ Refer to Chapter 2 "Print Head Alignment".

* Only horizontal adjustment is required.

28. (End of procedure)

Information

Necessary tools

Software
Peck

General tools
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. Servo board replacement

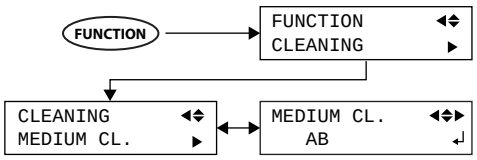
Referential time for work

Contents of work	Time
Servo board replacement	30 min.

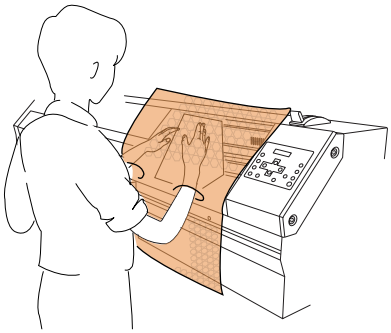
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.



Board layout (inside the cover)

First board stay

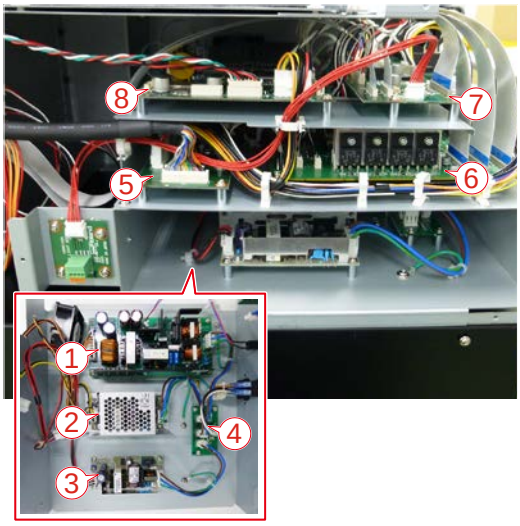
1. SW power supply (41V)
2. SW power supply (24V)
3. SW power supply (5V)
4. AC junction board

Second board stay

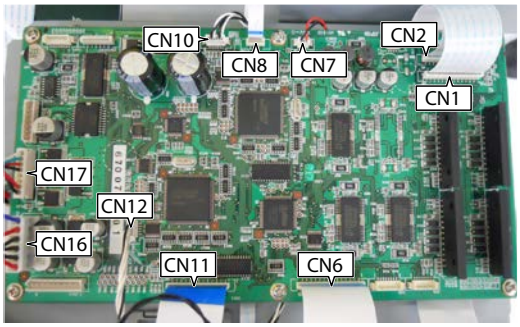
5. DC junction board
6. Main board

Third board stay

7. Signal junction board
8. Servo board

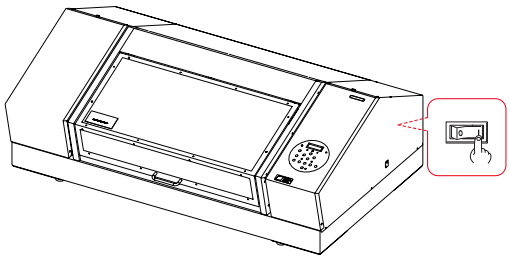


Servo board connector layout



Removing the Chassis

1. Turn on the main power SW.

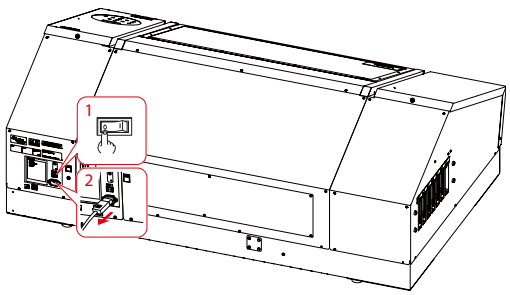


2. Start Peck.

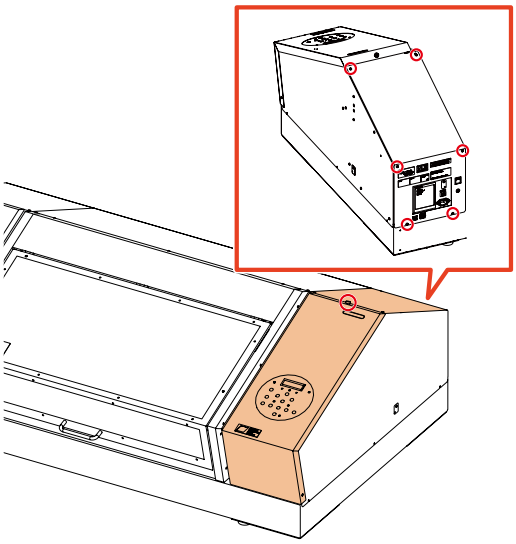
3. Click [Get Report] and [Get Parameters], and save the service report and the parameters.

4. Turn off the main power SW and unplug the power cord.

1. Main power SW
2. Power code

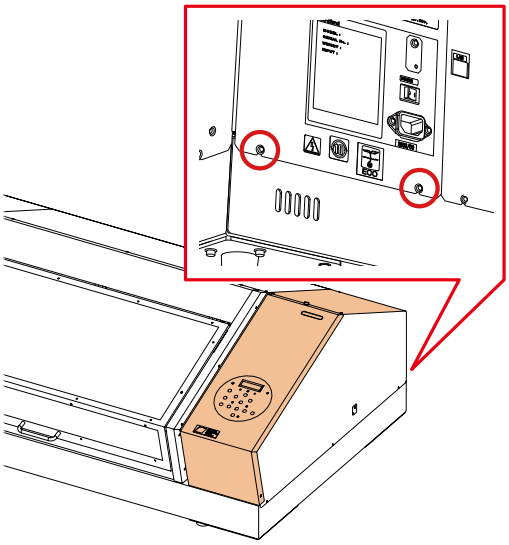


5. Remove seven screws that secure the covers.

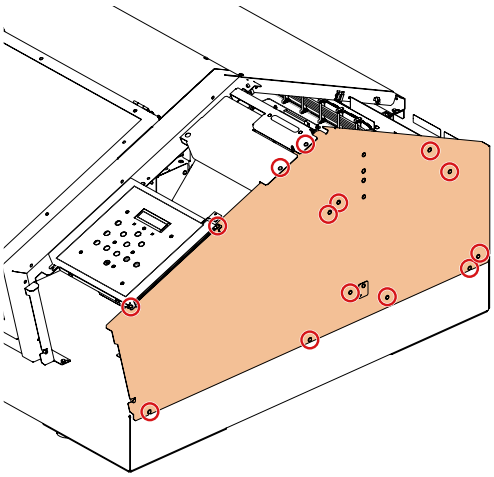


CAUTION

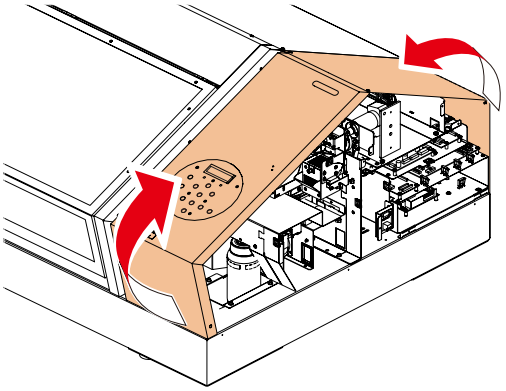
Do not remove the two screws that secure the top cover. Just loosen them.



6. Remove 14 screws that secure the cover.

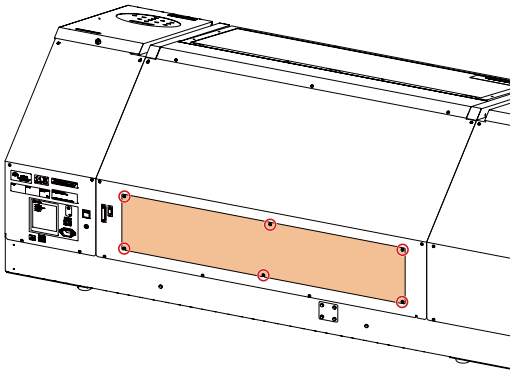


7. Place the covers. Do not tighten the screws yet.

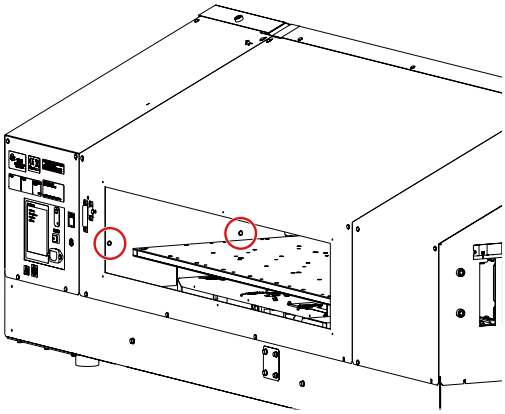


8. Remove six screws that secure the plate.

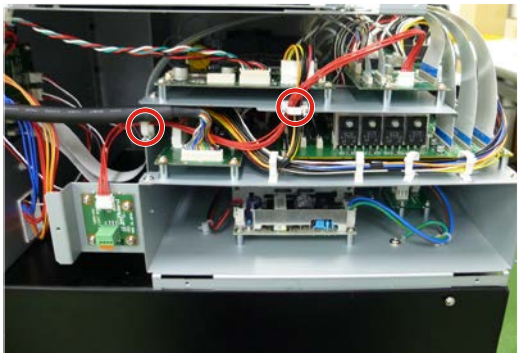
Rear view



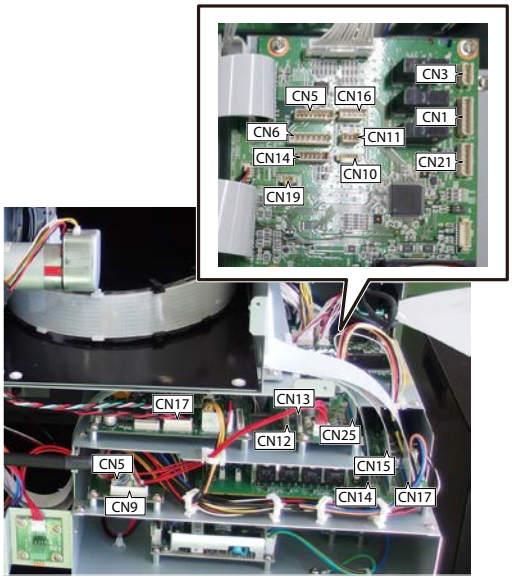
9. Remove two screws.



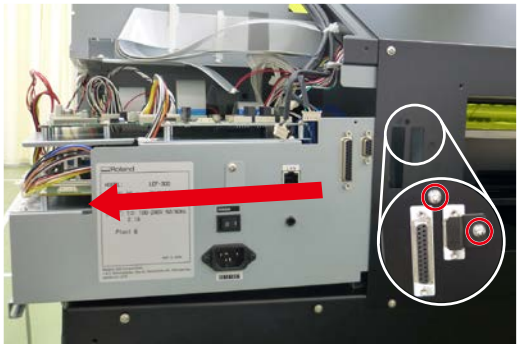
10. Release the cable from the clamps.



11. Unplug the connectors and disconnect the ribbon cables.

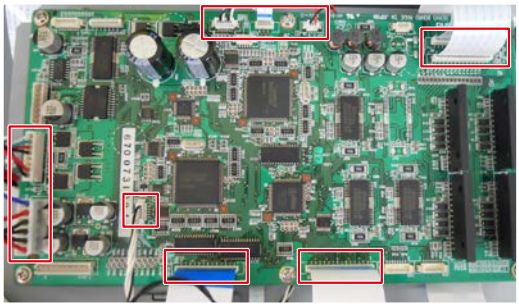


12. Remove two screws and pull out the chassis.

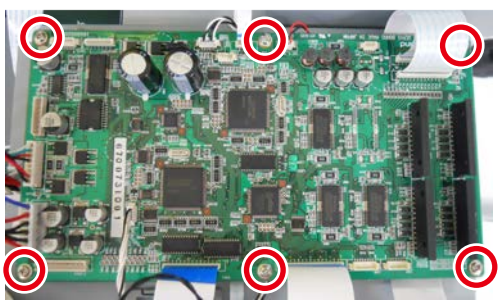


Removing the Servo Board

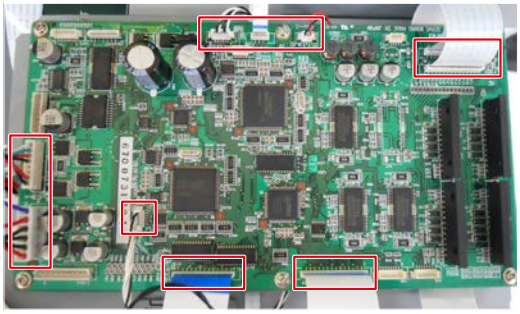
13. Unplug all the connectors and disconnect all the ribbon cables.



14. Remove four screws. Then, fix the new servo board.

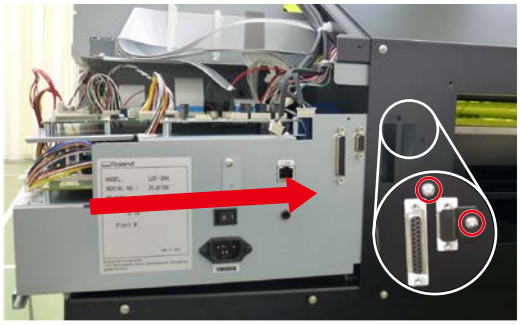


15. Plug all the connectors and connect all the ribbon cables.

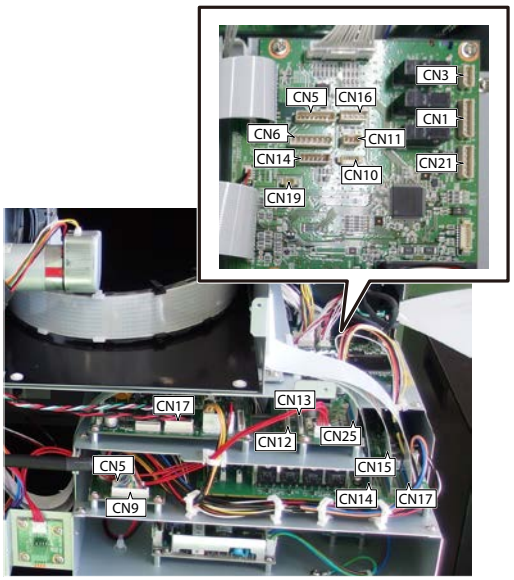


Attaching the Chassis Tray

16. Put back the chassis tray to its original position, and tighten two screws.

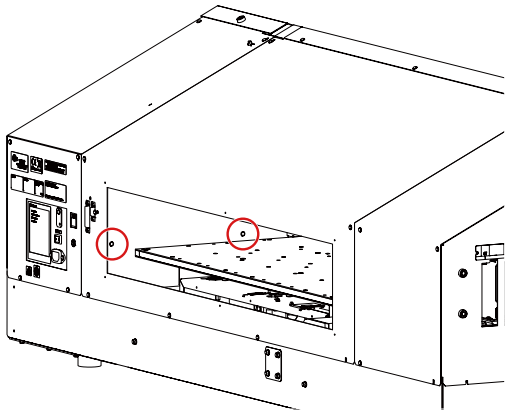


17. Plug all the connectors and connect all the ribbon cables.



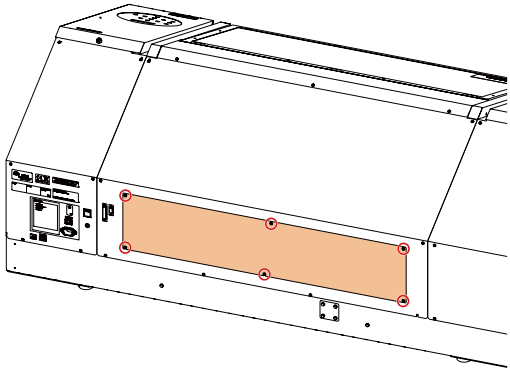
18. Fasten the cable with the clamps.

19. Tighten two screws.

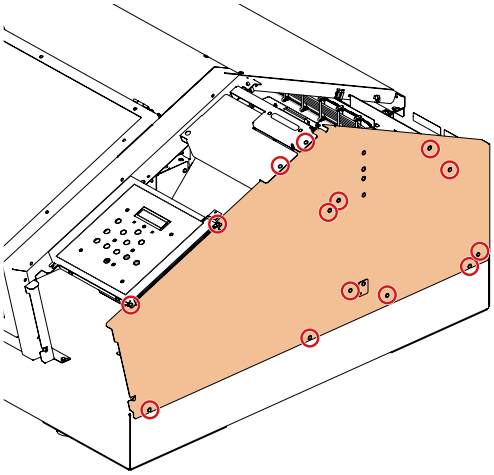


20. Tighten six screws to secure the plate.

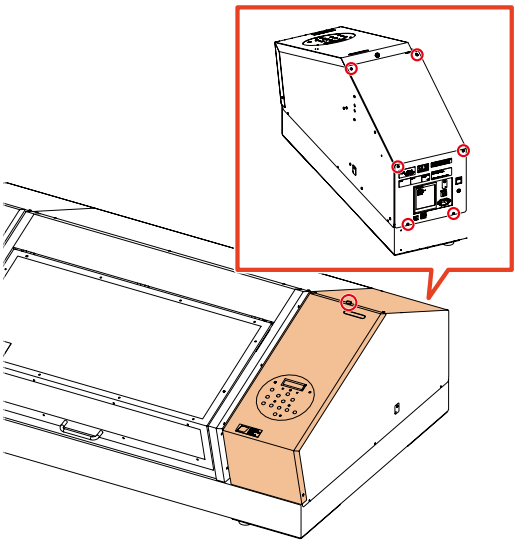
Rear view



21. Tighten 14 screws to secure the cover.



22. **Tighten seven screws to secure the covers.**



23. **Perform the following work.**

23-1. I/S check

* It can be performed in [I/S MENU] > [I/S CHECK].

23-2. IC check

* It can be performed in [I/S MENU] > [CARTRIDGE] > [IC CHECK].

23-3. Fan check

* It can be performed in the [SUB MENU] > [MIST FAN] to check that there is a operation sound of the Rear Fan, and check that the Front Fan is opearated correctly.

23-4. Pump check

* It can be performed in the [I/S MENU] > [PUMP CHECK] > [PUMP SUCTION] to check the pumps work correctly.

23-5. Sensor check

* It can be performed in [SENSOR CHECK].

23-6. Aging

* It can be pwerformed in [MOTOR MENU] > [AGING] > [SCAN], [FEED], [HEIGHT].

24. **(End of procedure)**

Information

Necessary tools

General tools
No.2 Phillips screwdriver
Longnose pliers

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **SW power supply replacement (41V)**
2. **SW power supply replacement (24V)**
3. **SW power supply replacement (5V)**

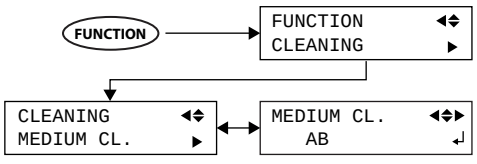
Referential time for work

Contents of work	Time
SW power supply replacement (41V)	50 min.
SW power supply replacement (24V)	50 min.
SW power supply replacement (5V)	50 min.

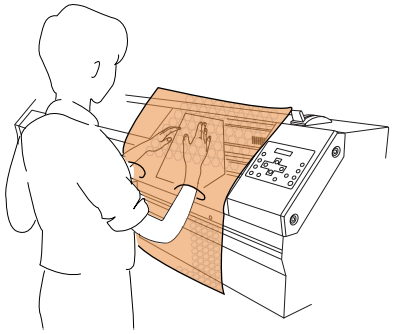
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.



Board layout (inside the cover)

First board stay

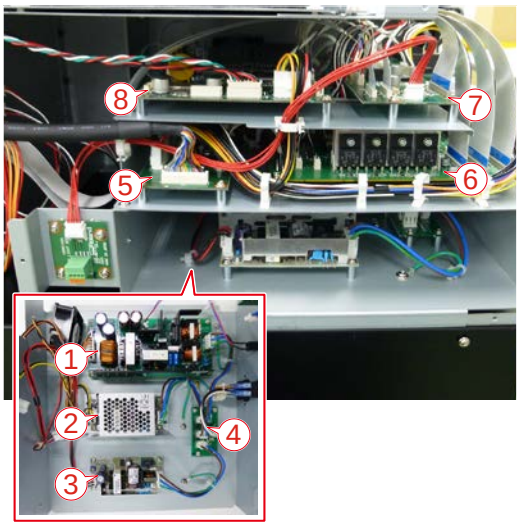
1. SW power supply (41V)
2. SW power supply (24V)
3. SW power supply (5V)
4. AC junction board

Second board stay

5. DC junction board
6. Main board

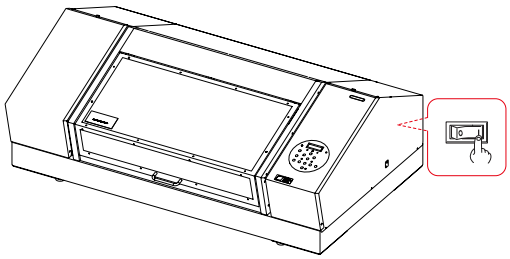
Third board stay

7. Signal junction board
8. Servo board



Removing the Chassis

1. Turn on the main power SW.

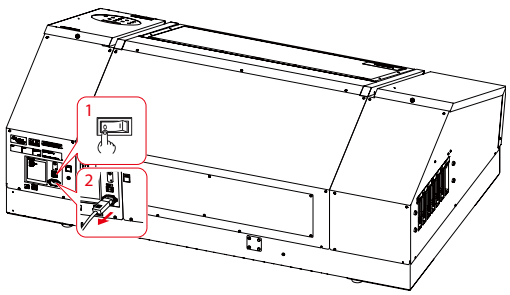


2. Start Peck.

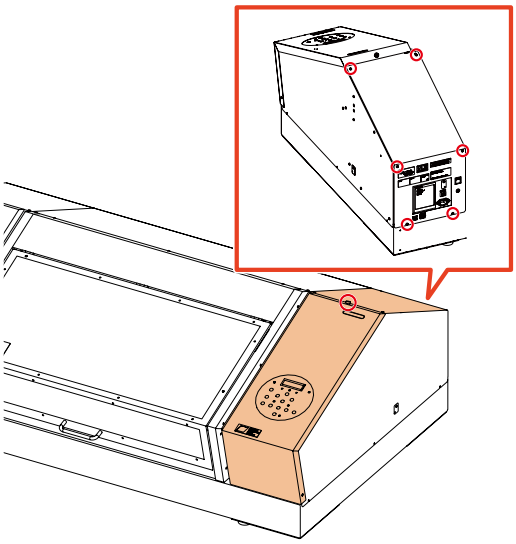
3. Click [Get Report] and [Get Parameters] to get the report and the parameters.

4. Turn off the main power SW and unplug the power cord.

1. Main power SW
2. Power cord

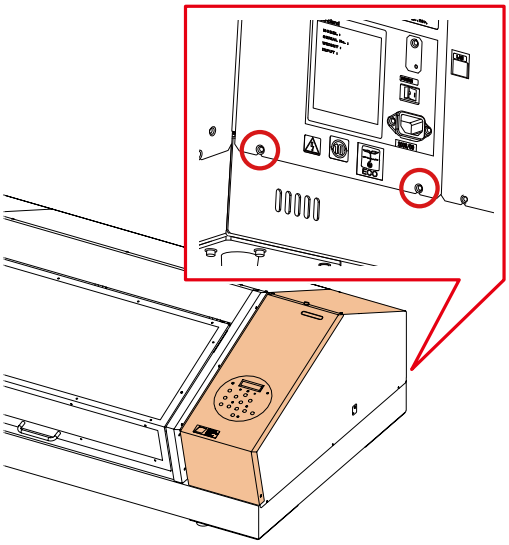


5. Remove seven screws that secure the covers.

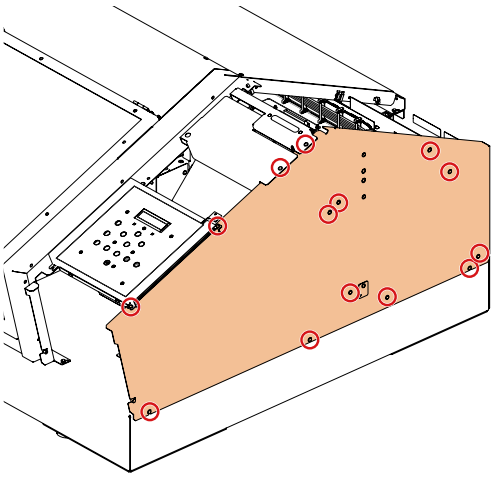


CAUTION

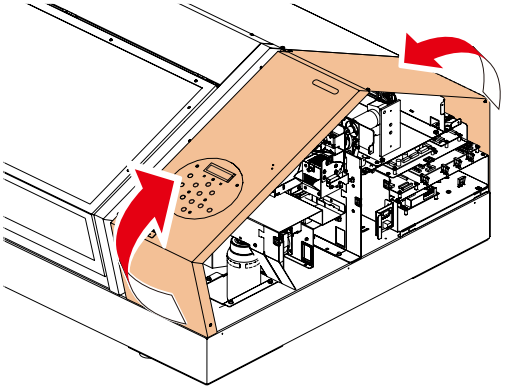
Do not remove the two screws that secure the top cover. Just loosen them.



6. Remove 14 screws that secure the cover.

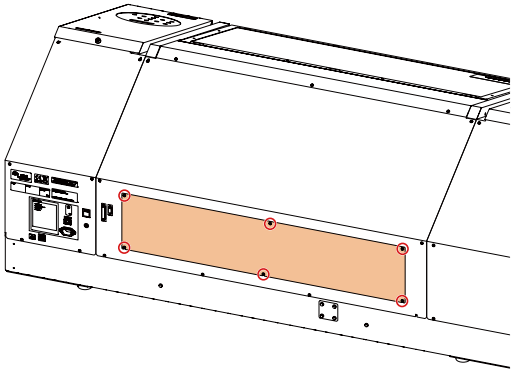


7. Place the covers to prevent ink from hardening. You do not have secure the covers with screws.

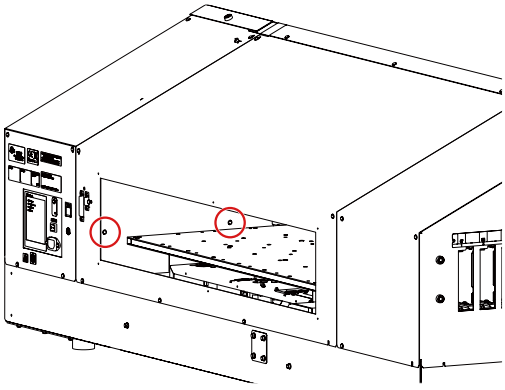


8. Remove six screws that secure the plate.

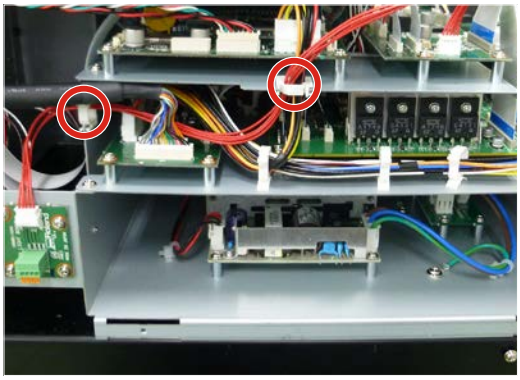
Rear view



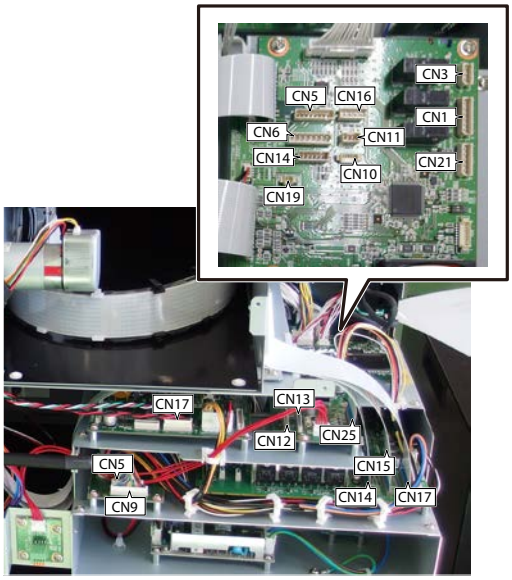
9. Remove two screws.



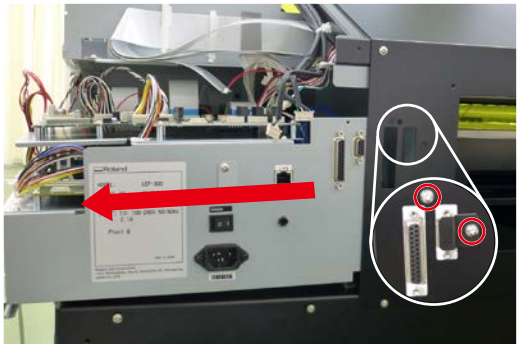
10. Release the cable from the clamps.



11. Unplug the connectors. Disconnect the ribbon cables.

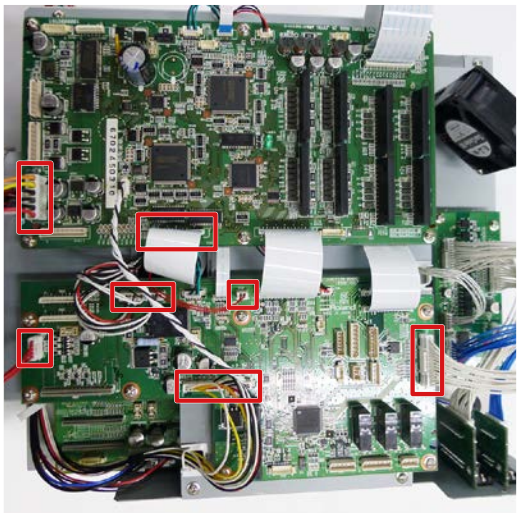


12. Remove two screws, and then pull out the chassis.

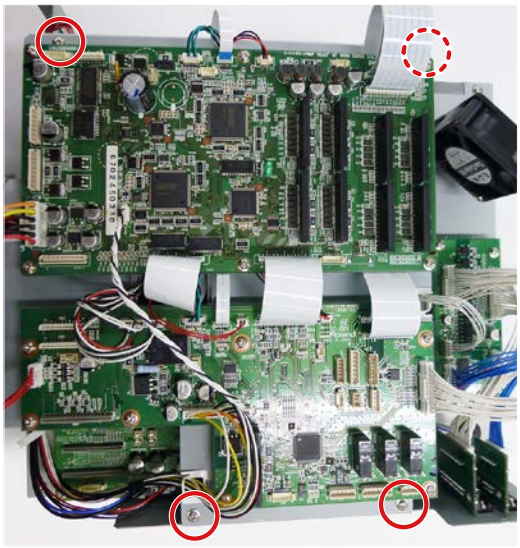


Removing the Third Board Stay

13. Unplug the connectors and disconnect the ribbon cable from the servo board and the signal junction board.

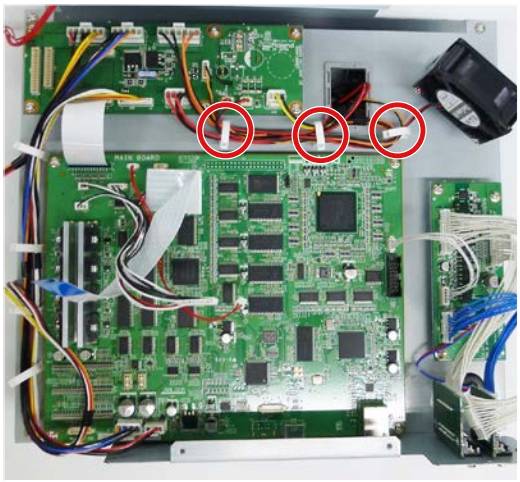


14. Remove four screws that secure the board stay.

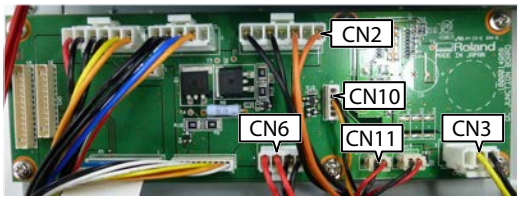


Removing the Second Board Stay

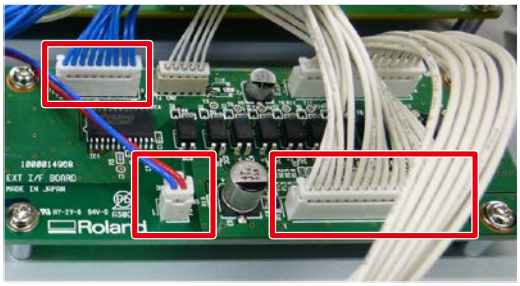
15. Remove the cables from the clamps.



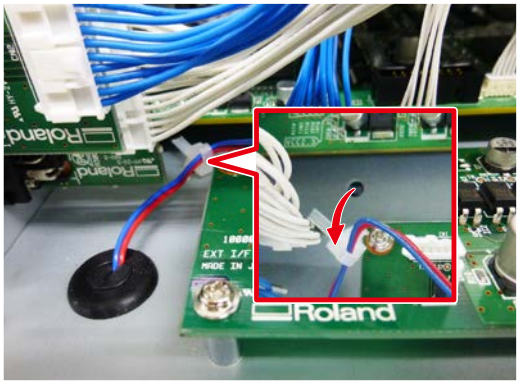
16. Unplug the connecotors from the DC juntion baord.



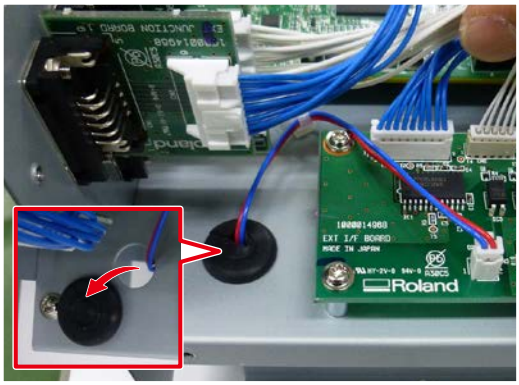
17. Unplug the connecotors from EXT I/F.



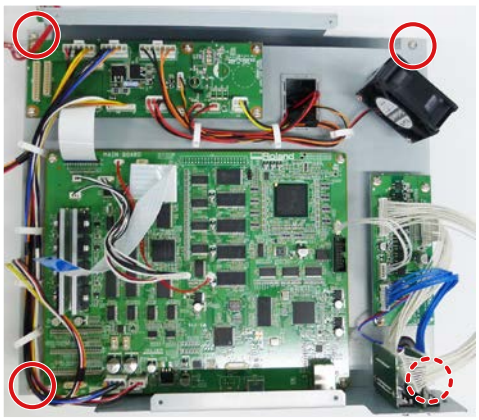
18. Detach the clamp bundling the cables using a longnose pliers.



19. Remove the grommet.



20. Remove four screws that secure the board stay.



SW Power Supply (41V) Replacement

SW power supply connector layout (41V)

1. Connected to [CN2] on the AC junction board
2. Connected to [CN2] on the DC junction board
3. Connected to [CN10] on the DC junction board

21. Unplug all the connectors.

22. Remove five screws, and replace the SW power supply (41V) the new one.

CAUTION

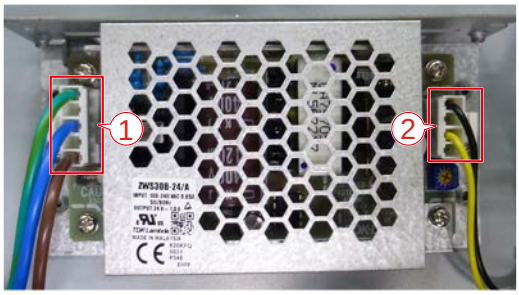
In the case that the volume is accidentally turned, adjust the output voltage value to +41 +/- 0.1.

23. Plug all the connectors.

SW Power Supply (24V) Replacement

SW power supply connector layout (24V)

1. Connected to [CN3] on the AC junction board
2. Connected to [CN3] on the DC junction board

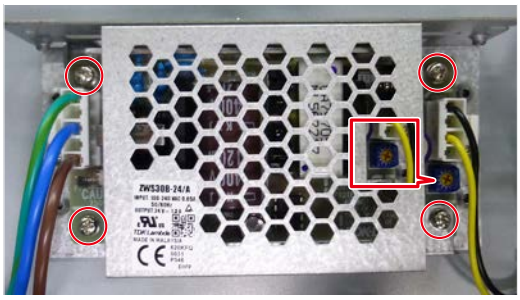


24. Unplug all the conncectors.

25. Remove four screws, and replace the SW power supply (24V) with a new one.

CAUTION

In the case that the volume is accidentally turned, adjust the output voltage value to +24 +/- 0.1.



26. Plug all the connectors.

SW Power Supply (5V) Replacement

SW power supply connector layout (5V)

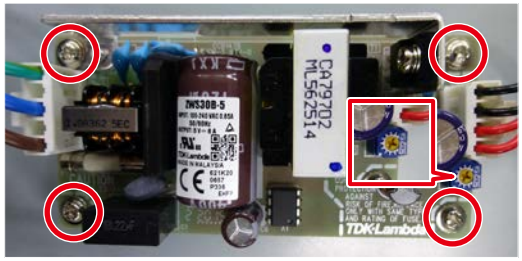
1. Connected to [CN4] on the AC junction board
2. Connected to [CN6] on the DC junction board

27. Unplug all the cables from the SW power supply.

28. Remove four screws, and replace the SW power supply (5V) the new one.

CAUTION

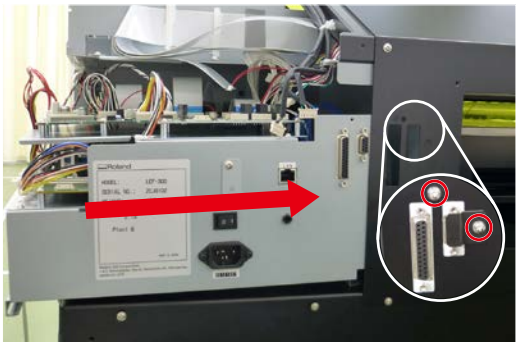
In the case that the volume is accidentally turned, adjust the output voltage value to +5+/- 0.1



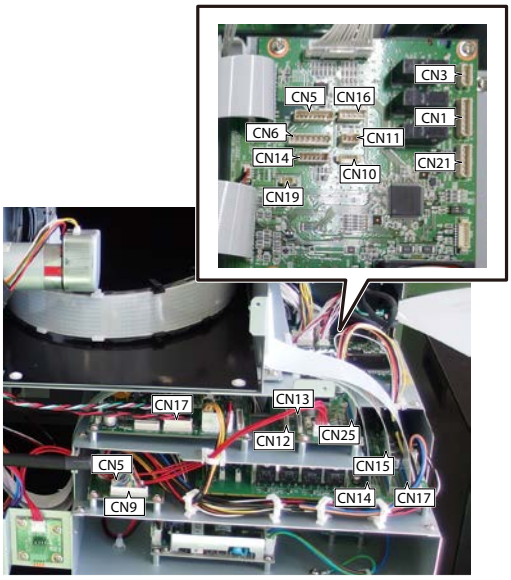
29. Plug all the cables.

Attaching the Chassis

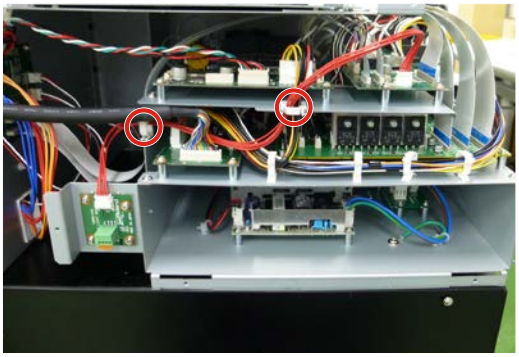
30. Put back the chassis, and tighten two screws.



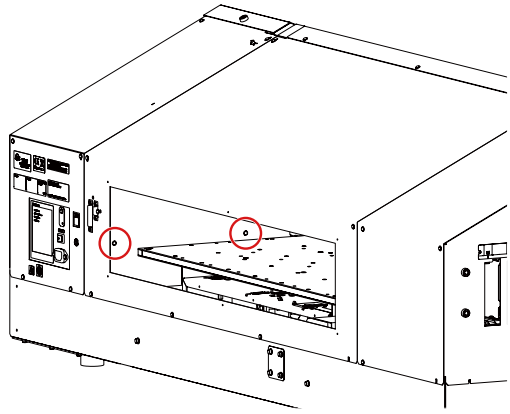
31. Plug the connectors and connect the ribbon cables.



32. Close all the clamps.

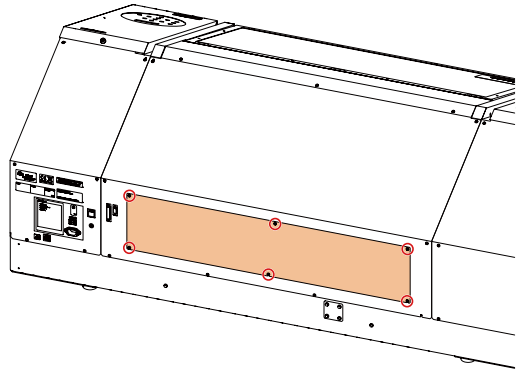


33. Tighten two screws.

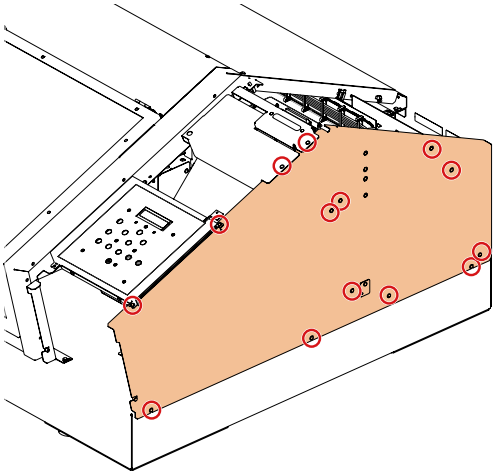


34. Tighten six screws to secure the plate.

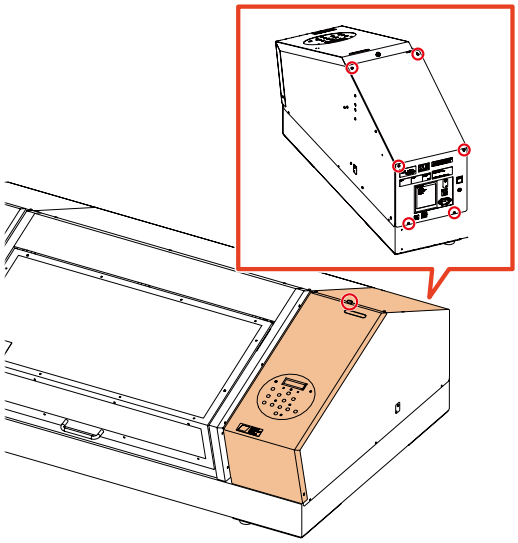
Rear view



35. Tighten 14 screws to secure the cover.



36. Tighten seven screws to secure the covers.



37. (End of procedure)

Battery Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver

Workflow

1. Battery replacement
2. Setting the date & time

Referential time for work

Contents of work	Time
Battery replacement	7 min.
Setting the date & time	2 min.

Procedure

CAUTION

Danger of explosion if the lithium battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufactuere. Dispose of used batteries according to the manufacturer's instructions.

ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du méme type ou d'un type équivalent recommandé par le constructeur. Mattre au rebut les batteries usagées conformément aux instructions du fabricant.

ADVARSEL!

Lithiumbatteri – Eksplosionsfare ved fejlagtig handtering. Udskiftning ma kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til laveranøren.

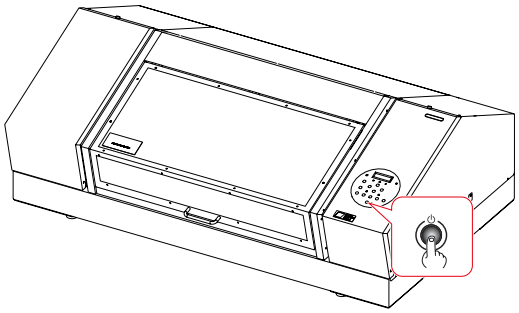
⚠ CAUTION

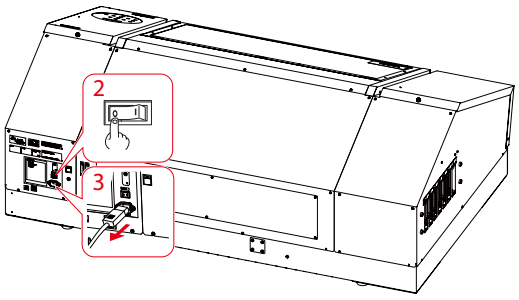
Do not recharge, short-circuit, disassembly the lithium battery, nor put it into fire.
It may cause heat, explosion and fire.

Put tape around the lithium battery for insulation for disposal or preservation. It may cause heat, explosion and fire.

1. Turn off the sub power SW, and then turn off the main power SW, and unplug the power cord.

1. Sub power SW
2. Main power SW
3. Power code

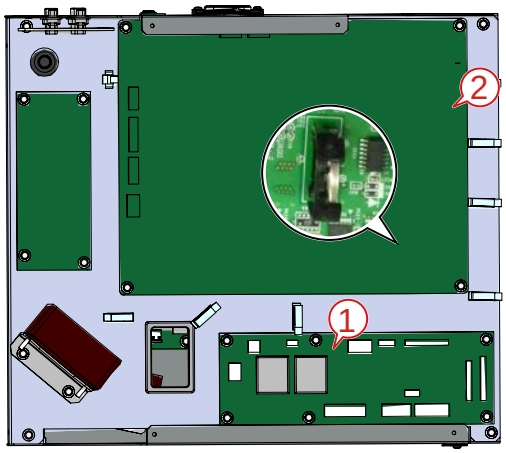




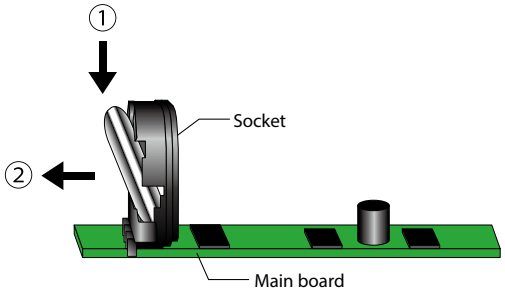
2. Remove the third board stay from the bottom from the chassis referring to Chapter 1 "Main Board Replacement" so that you can access the main board which is on the second board stay from the bottom.

Second board stay

1. DC junction board
2. Main board



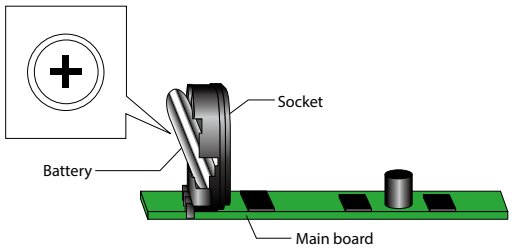
3. Remove the battery on the main board by pushing it down and tilting it towards left.



4. Replace the battery with a new one.

CAUTION

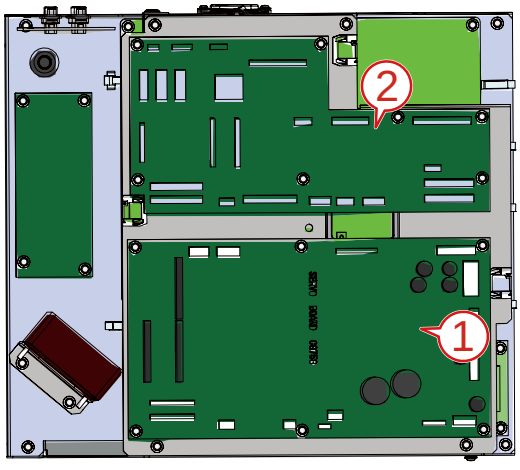
Be careful of the orientation of the battery.



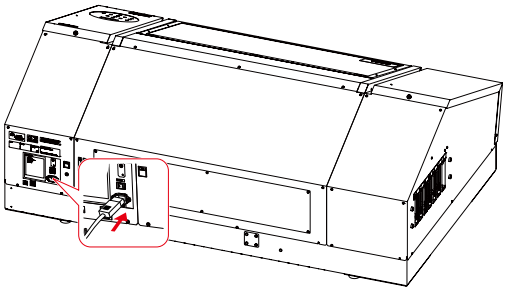
5. Attach the third board stay to the chassis referring to Chapter 1 "Main Board Replacement".

Third board stay

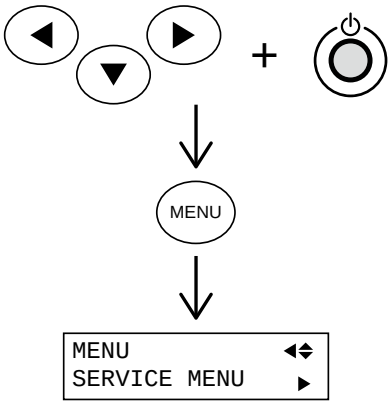
1. Servo board
2. Signal junction board



6. Plug the power code.



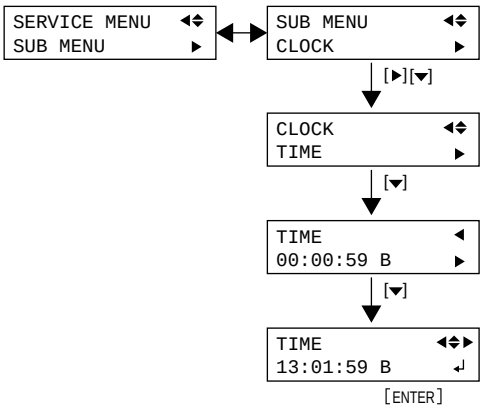
7. Turn on the main power SW, then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



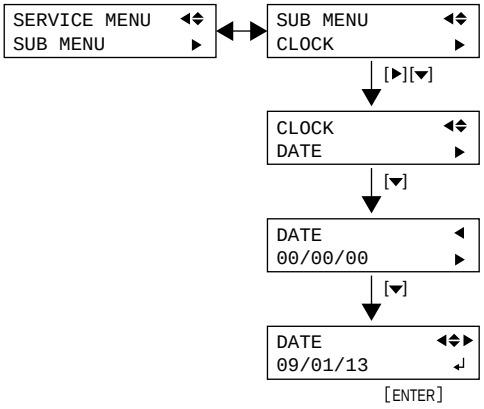
8. Select [SERVICE MENU] > [SUB MENU] > [CLOCK] > [TIME]. Set the time, and press the [ENTER] key.

CAUTION

The display of [B] which shows a battery exhaustion disappears by this step.

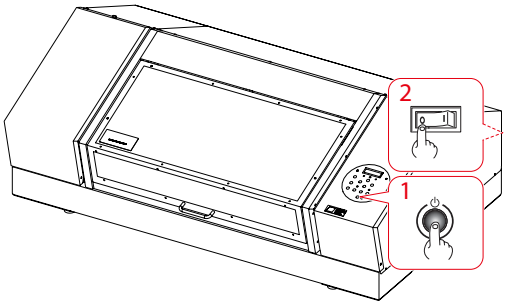


9. **Select [SERVICE MENU] > [SUB MENU] > [CLOCK] > [DATE]. Set the date, and press the [ENTER] key.**



10. **Turn off the sub power SW, and then turn off the main power SW.**

1. Sub power SW
2. Main power SW



11. **Dispose of the removed battery.**

12. **(End of procedure)**

Carriage Belt Replacement ⚠1 ⚠14

Information

Necessary tools

General tools
No.2 Phillips screwdriver
Tape

Special tools	
6000004129	GREASE,FLOIL G-902 10ML_02
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Carriage belt replacement**
2. **Belt tension adjustment**
3. **Belt position adjustment**
4. **Limit position & maximum scan width position initialize**

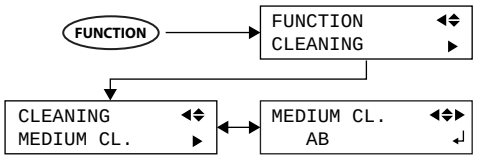
Referential time for work

Contents of work	Time
Carriage belt replacement	30 min.
Belt tension adjustment	20 min.
Belt position adjustment	30 min.
Limit position & maximum scan width position initialize	3 min.

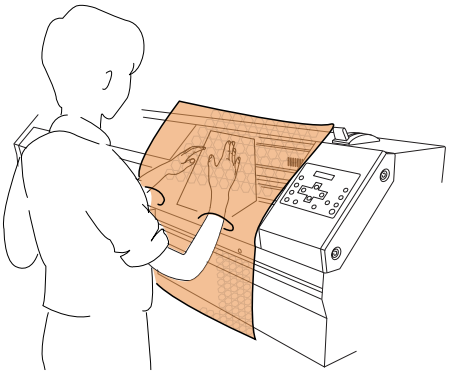
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

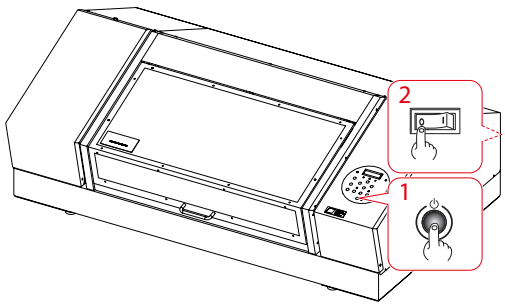


- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

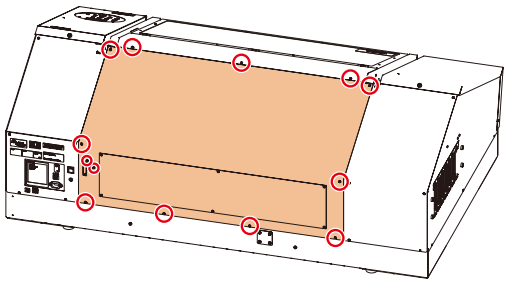


1. **Turn off the sub power SW, and then turn off the main power SW.**

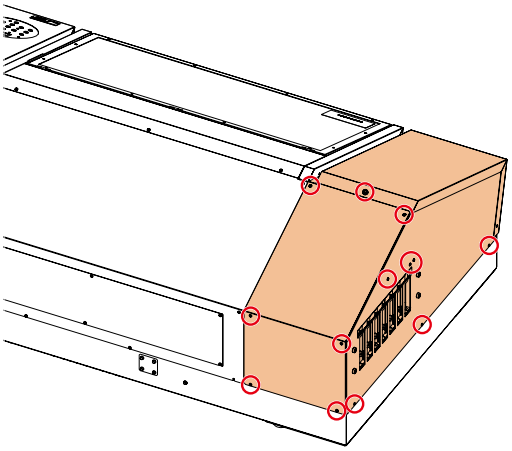
1. Sub power SW
2. Main power SW



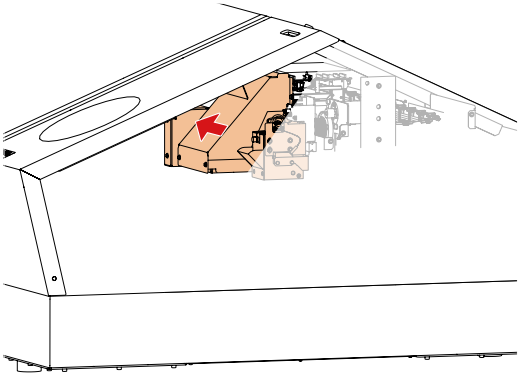
2. **Remove 13 screws that secure the cover.**



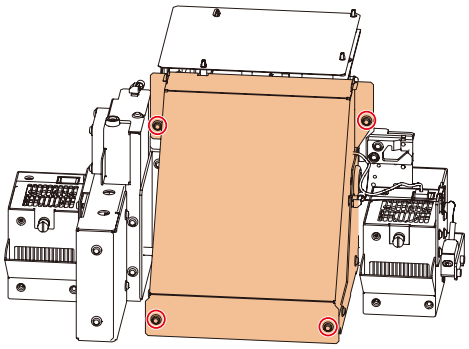
3. Remove 13 screws that secure the cover.



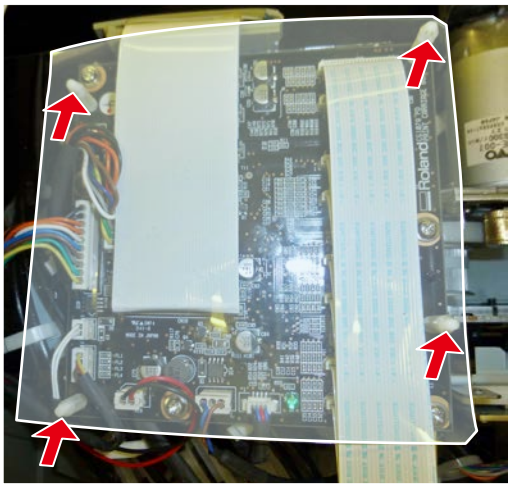
4. Unlock the head carriage, and move it to the left by hand.



5. Remove four screws that secure the carriage cover.

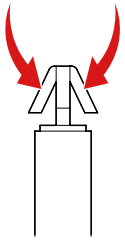


6. Remove the carriage board cover.

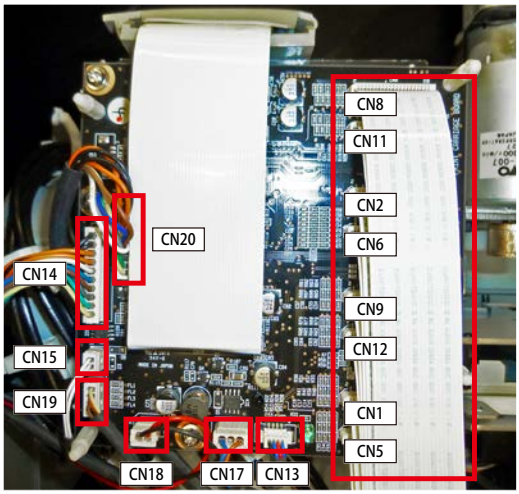


CAUTION

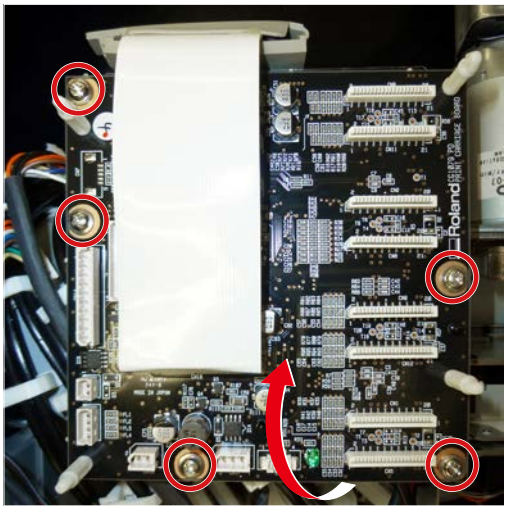
Since the top part of the support is easy to break, make sure to push the part indicated by the arrows when removing the carriage board.



7. Unplug the connectors and disconnect the ribbon cables from the carriage board.

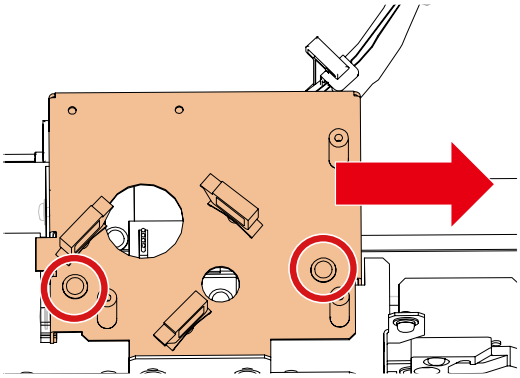


8. Remove five screws. Then, turn over the carriage board.



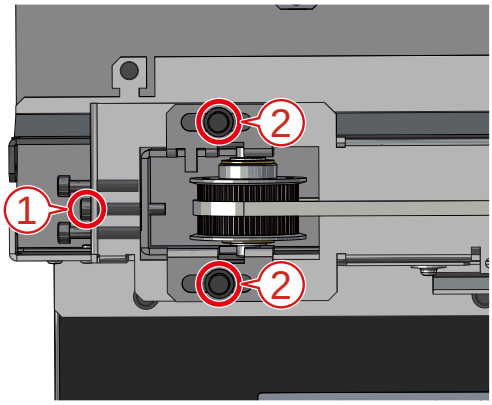
9. Open the clamps.

10. Remove two screws. Then, slide the carriage holder stay to the right.

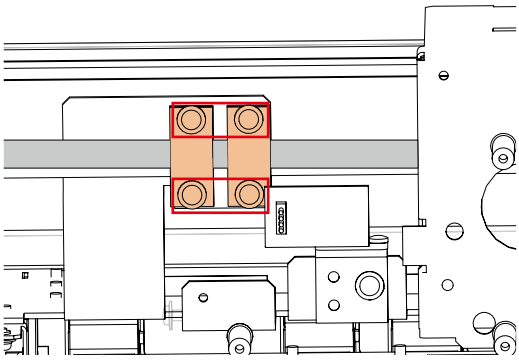


11. Loosen the fixing screw and two adjustment screws.

1. Fixing screw
2. Adjustment screw



12. Loosen four screws that secure the belt stay.

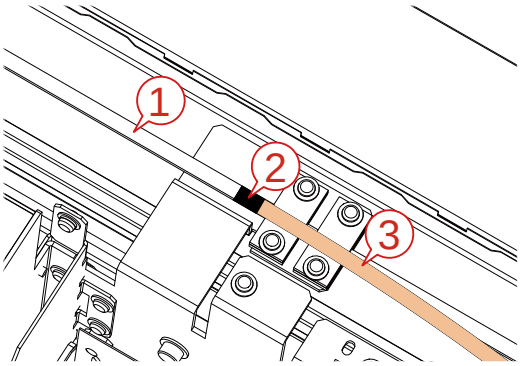


13. Remove the carriage belt from the belt stay. Then, tape the old carriage belt and the new one together.

CAUTION

When replacing the carriage belt, make sure to tape the old belt and the new belt together. Then, pass the new belt through the machine as you pull out the old one. Otherwise, you won't be able to insert the new belt.

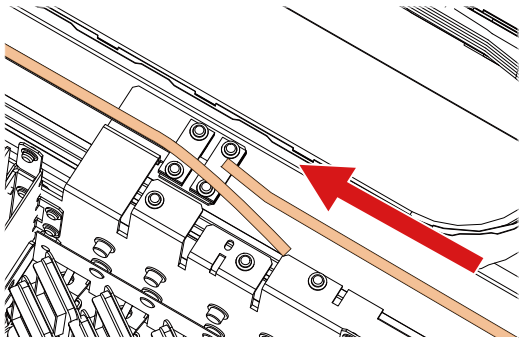
1. Old belt
2. Tape
3. New belt



14. **Pull the old belt until the new belt reaches the belt stay.**

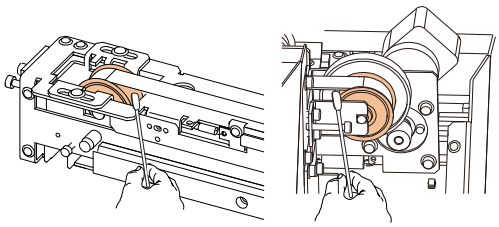
CAUTION

Make sure that the belt is not twisted.



15. **Apply grease to the right and left pulleys.**

- Grease: GREASE,FLOIL G-902 10ML_02
- Volume: as needed



Left Side Right Side

16. **Remove the tape. Tighten two screws to secure the metal plates, the plastic plates, and the carriage belts to the belt holder.**

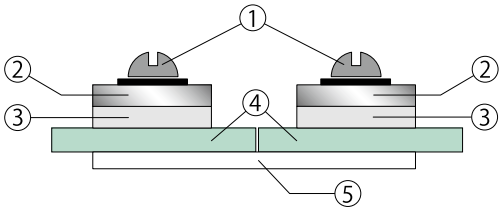
CAUTION

- When fixing the carriage belt, make sure the ends of the belts are not overlapping.
- Be careful with the orientation of the plastic plates and the order of the plates.

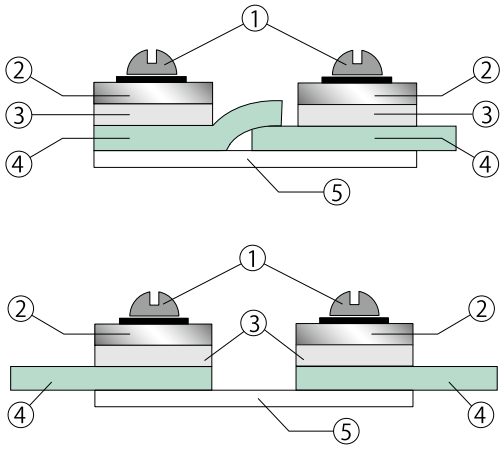
1. Screw
2. Metal plate
3. Plastic plate
4. Carriage belt
5. Belt holder

Cross-section diagram

OK



No Good

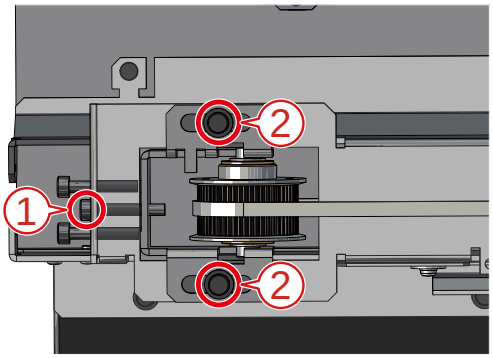


17. **Tighten two adjustment screws to remove the slack of the belt. Then, tighten the fixing screw.**

CAUTION

Be careful not to tighten the adjustment screws too hard.

1. Fixing screw
2. Adjustment screw

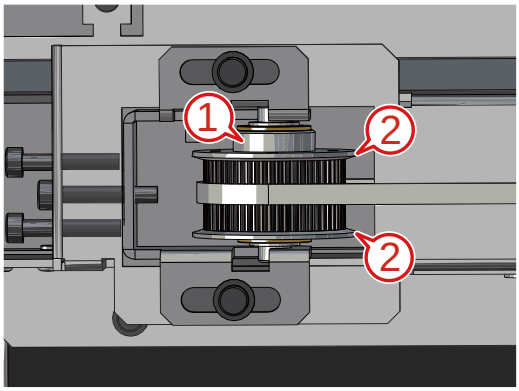


18. **Make sure that the belt is not making contact with the flanges of the drive pulley and the idle pulley.**

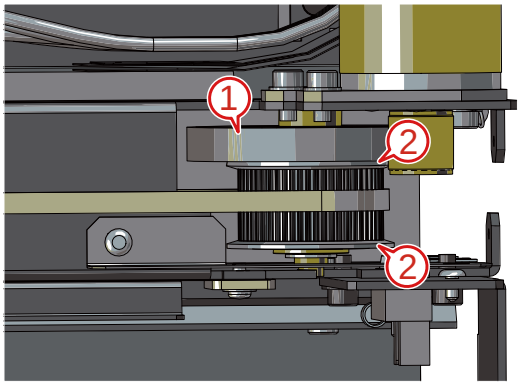
Top view

1. Idle pulley
2. Flange

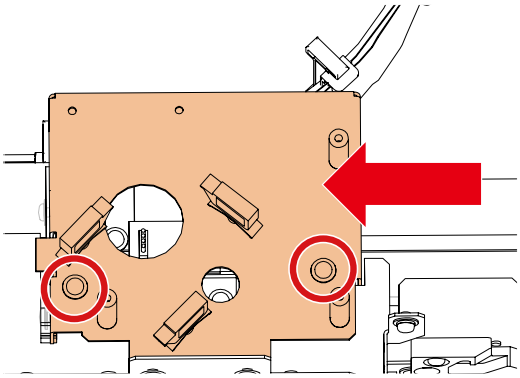
Left side of the belt



Right side of the belt



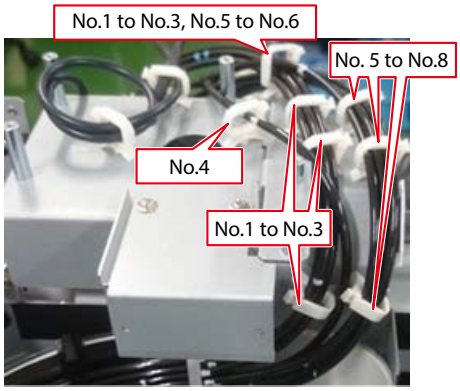
19. Slide the carriage holder stay to the left, and tighten two screws.



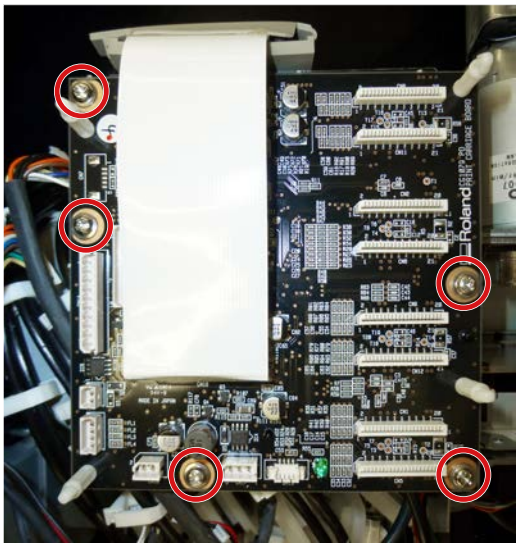
20. Bundle the ink tubes with the clamps while pushing the ink tubes backward so as not to locate the front of the head carriage.

CAUTION

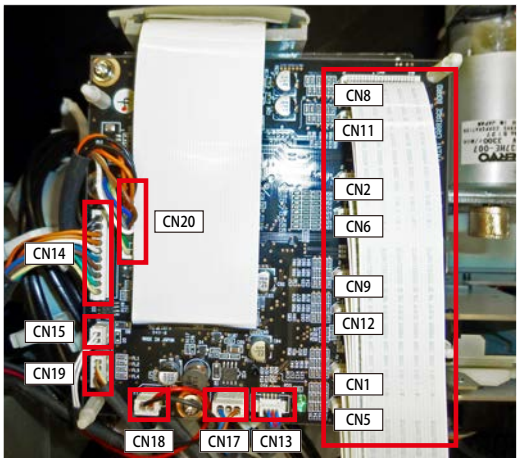
If you do not bundle the ink tubes, they will pull up the print head, and the print head will be tilted.



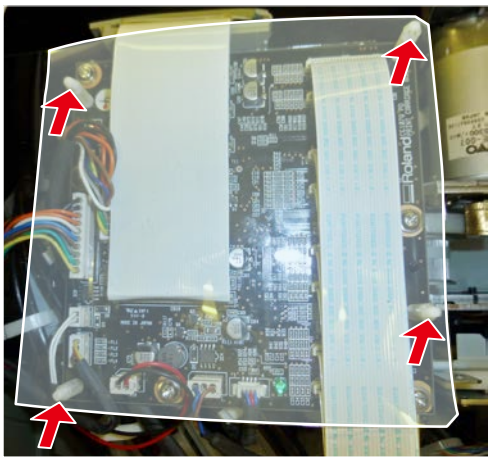
21. Tighten five screws to secure the carriage board.



22. Plug the connectors, and connect the ribbon cables.

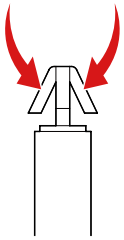


23. Attach the carriage board cover.



CAUTION

Since the top part of the support is easy to break, make sure to push the part indicated by the arrows when removing the carriage board.



24. **Perform the following adjustments.**

24-1. Chapter 2 "Belt Tension Adjustment"

24-2. Chapter 2 "Belt Position Adjustment"

24-3. Chapter 2 "Limit Position & Maximum Scan Width Position Initialize"

25. **(End of procedure)**

Encoder Scale Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. Encoder scale replacement
2. Linear encoder setup

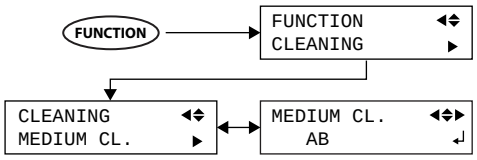
Referential time for work

Contents of work	Time
Encoder scale replacement	25 min.
Linear encoder setup	5 min.

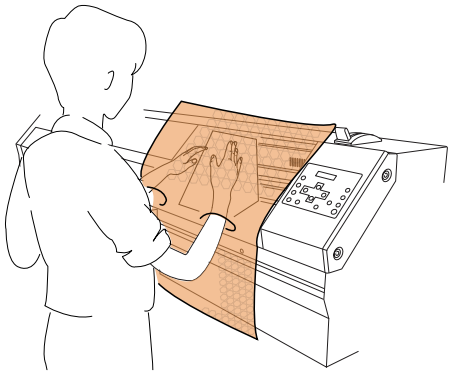
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

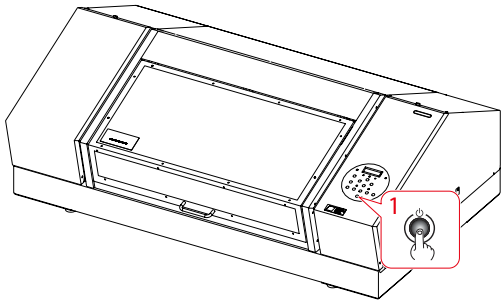


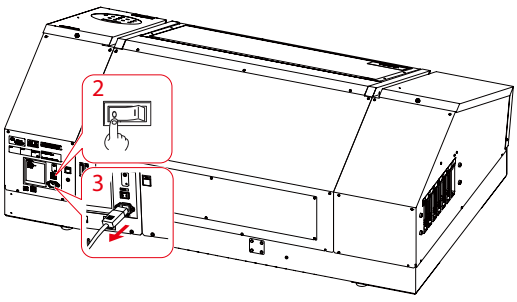
- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.



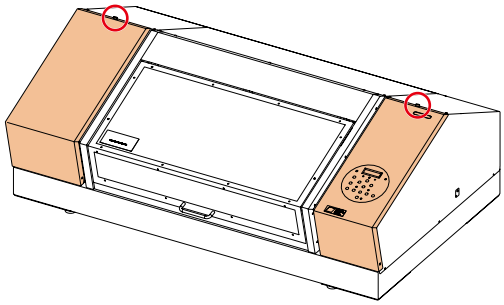
1. Turn off the sub power SW, then turn off the main power SW.

1. Sub power SW
2. Main power SW

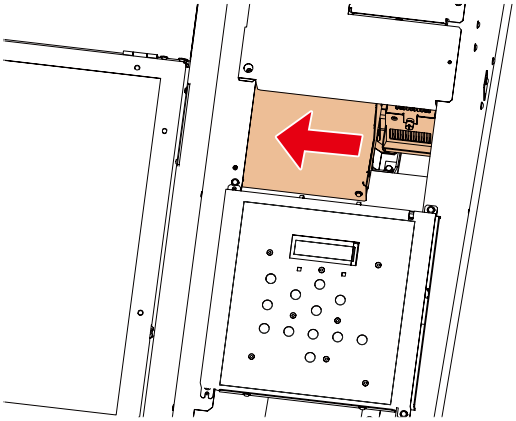




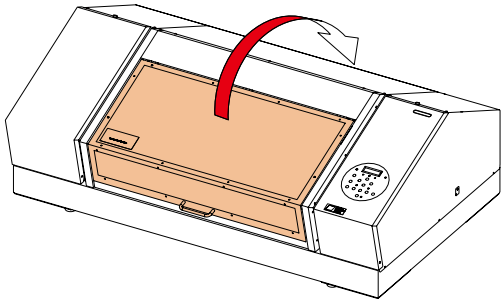
2. Remove two screws that secure the covers.



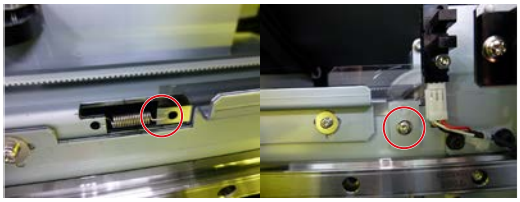
3. Unlock the head carriage, and move it to the left by hand.



4. Open the cover.



5. Remove the plate that secures the right side of the encoder scale. Also, remove the spring on the left side. Then, remove the encoder scale.

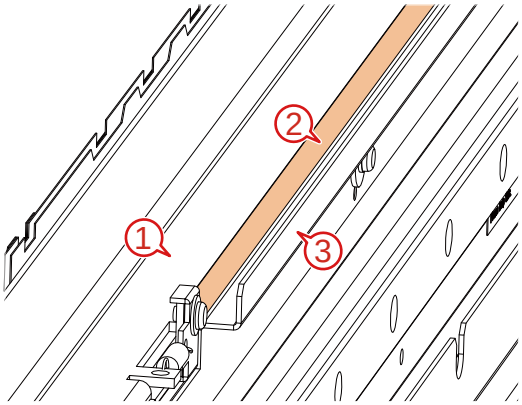


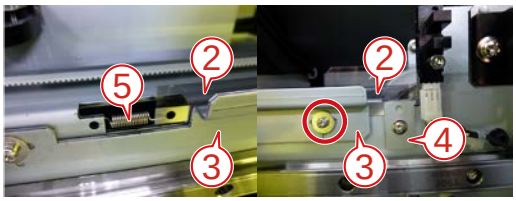
6. Insert the encoder scale between the encoder plate and the guide rail. Secure the right side of the encoder scale with the plate, and attach the spring on the left side. Make sure that the encoder scale fits in place.

CAUTION

- Do not loosen and fasten the screws that secure the encoder plate.
- The encoder scale is covered with protective film. Peel it off carefully.

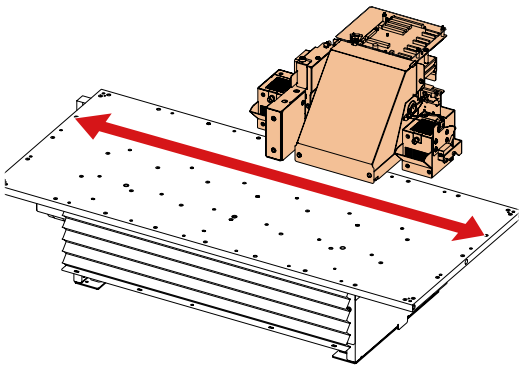
1. Guide rail
2. Encoder scale
3. Encoder plate
4. Plate
5. Spring





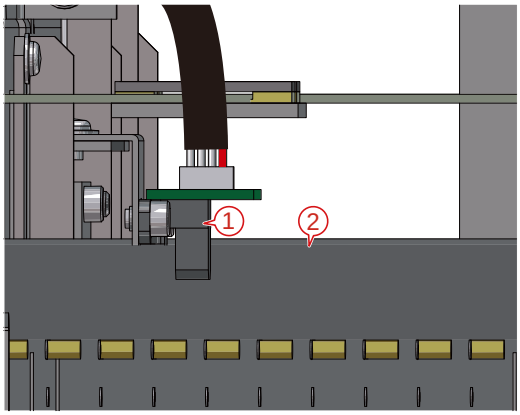
7. **Move the head carriage in the entire width of the machine. Make sure that the encoder scale does not make contact with the encoder sensor and also encoder scale is inside the slit of the encoder sensor.**

7-1. Perform Chapter 2 "Linear Encoder Setup".



Enlarged view of the linear encoder scale and the linear encoder sensor

1. Linear encoder sensor
2. Linear encoder scale



8. **(End of procedure)**

Linear Encoder Board Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Linear encoder board replacement**

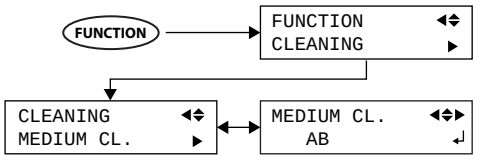
Referential time for work

Contents of work	Time
Linear encoder board replacement	30 min.

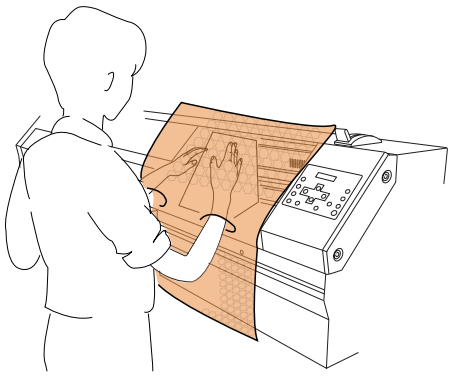
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

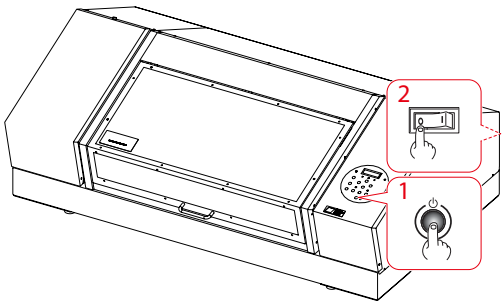


- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

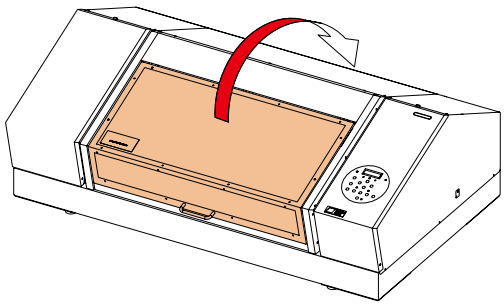


1. **Turn off the sub power SW, then turn off the main power SW.**

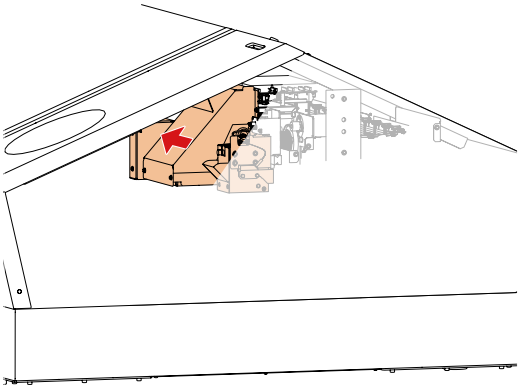
1. Sub power SW
2. Main power SW



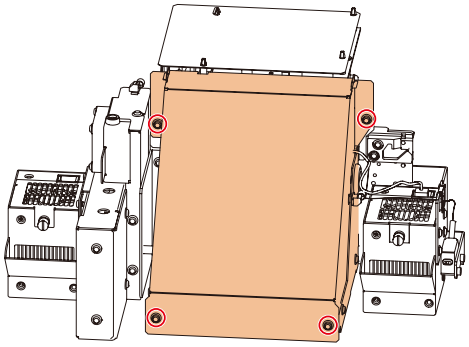
2. **Open the cover.**



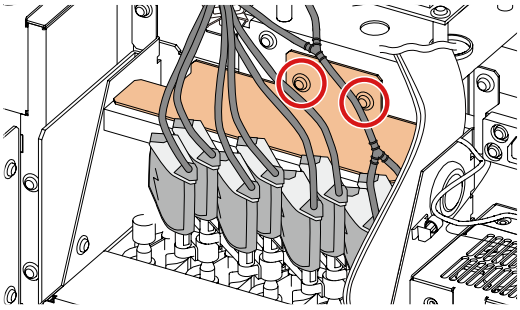
3. Unlock the head carriage, and move it to the left by hand.



4. Remove four screws that secure the carriage cover.



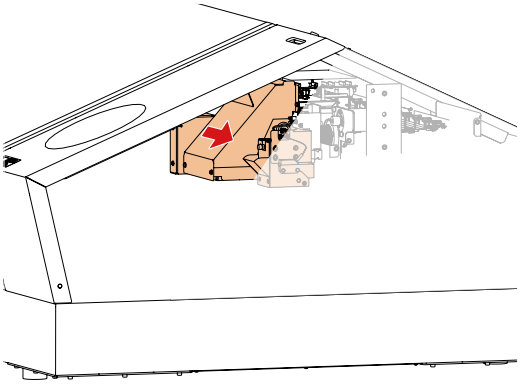
5. Remove two screws that secure the damper plate.



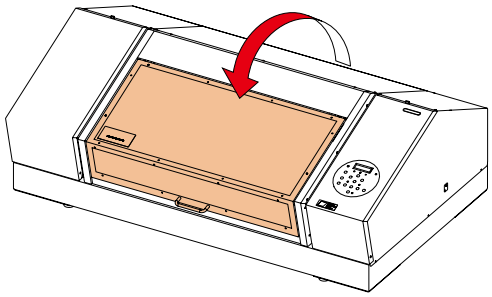
6. Move the head carriage to the lock position.

CAUTION

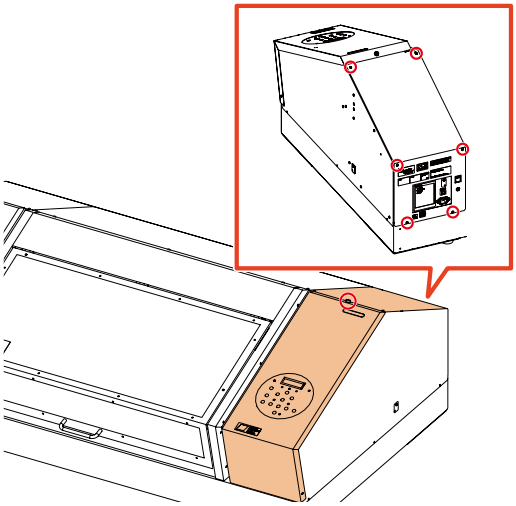
Do not lock the head carriage.



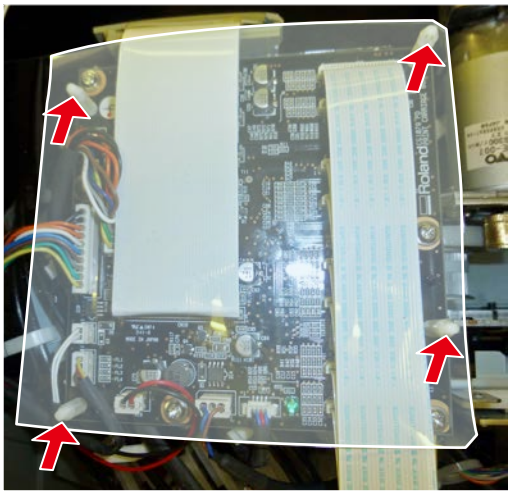
7. Close the cover.



8. Remove seven screws that secure the covers.

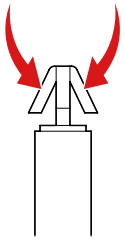


9. Remove the carriage board cover.

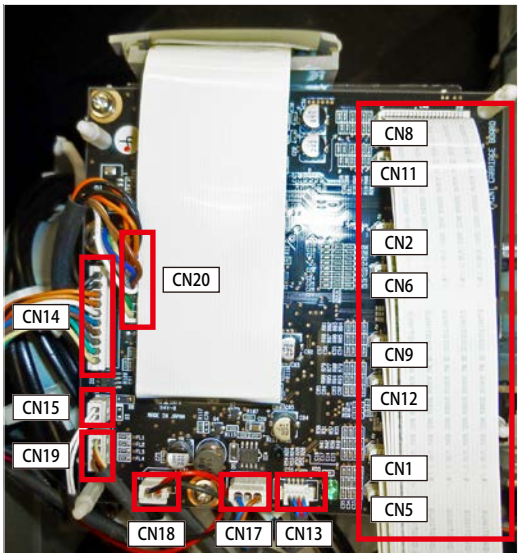


CAUTION

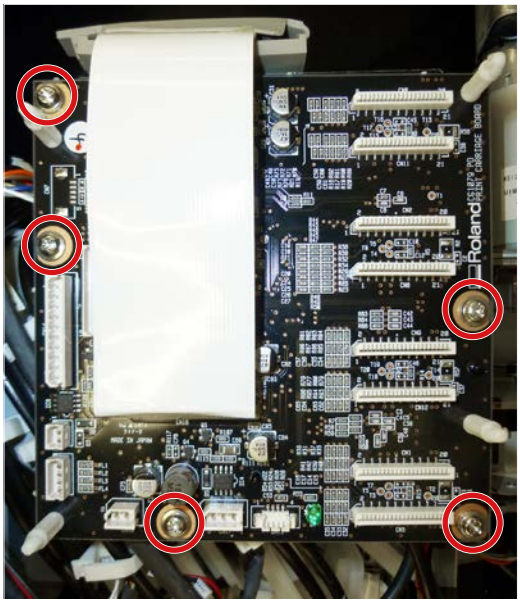
Since the top part of the support is easy to break, make sure to push the part indicated by the arrows when removing the carriage board.



10. Unplug the connectors and disconnect the ribbon cables.

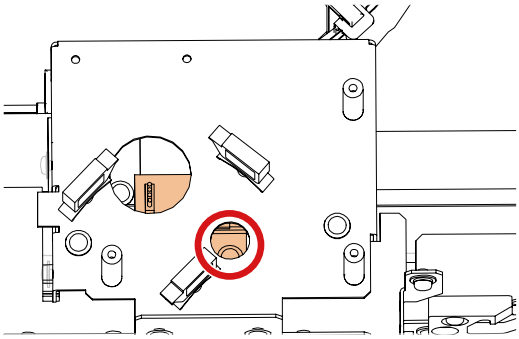


11. Remove five screws that secure the carriage board.

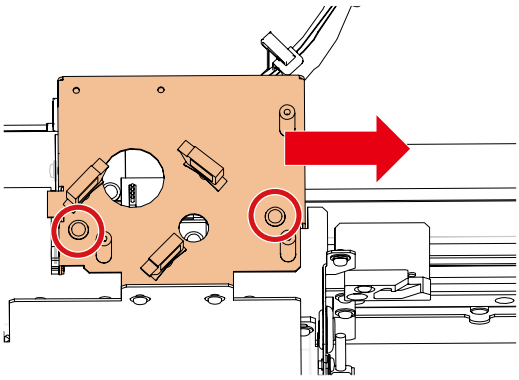


12. Open the clamps.

13. Remove the screw.

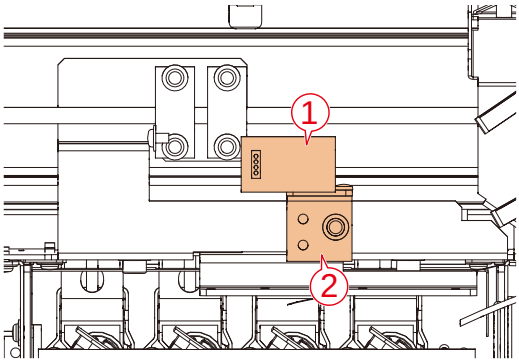


14. Remove two screws. Then, move the carriage holder stay to the right.

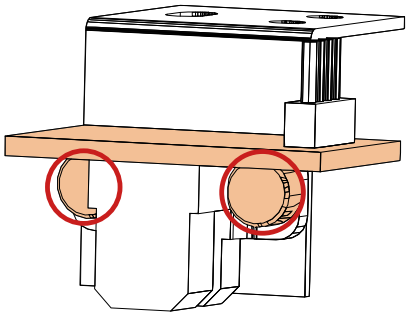


15. Remove the linear encoder board together with the encoder sensor stay.

1. Encoder sensor stay
2. Linear encoder board



16. Remove two screws. Then, fix a new linear encoder board.

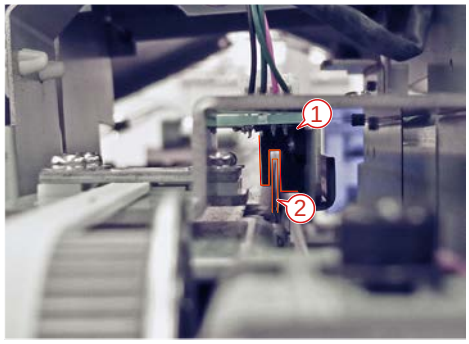


17. Fix the linear encoder board and the carriage holder stay to the machine.

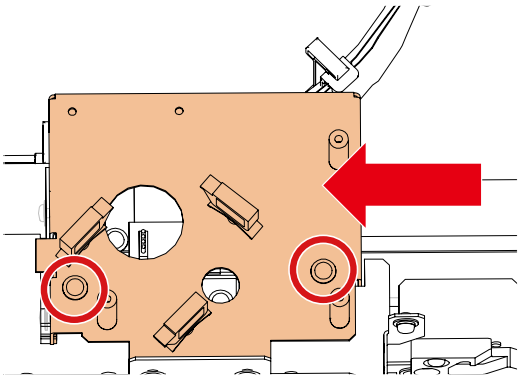
CAUTION

Make sure that the encoder scale does not make contact with the encoder sensor and also encoder scale is between the slit of the encoder sensor.

1. Encoder sensor
2. Encoder scale



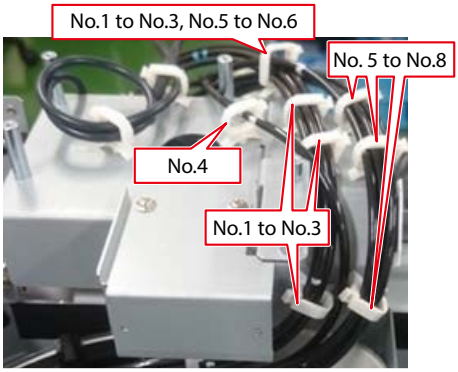
18. Move the carriage holder stay to the left. Then, tighten two screws.



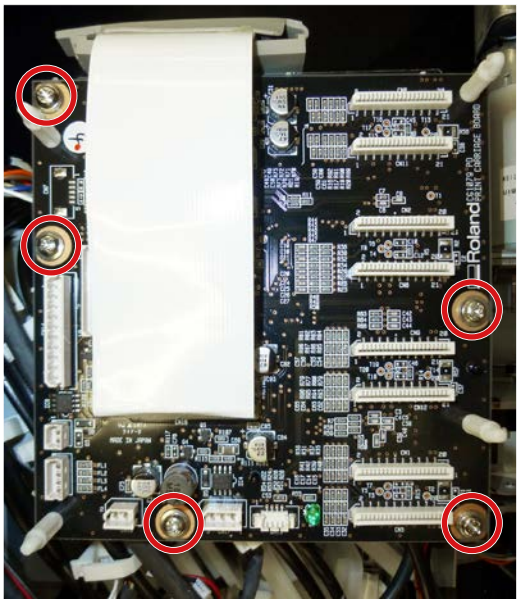
19. Bundle the ink tubes with the clamps while pushing the ink tubes backward so as not to locate the front of the head carriage.

CAUTION

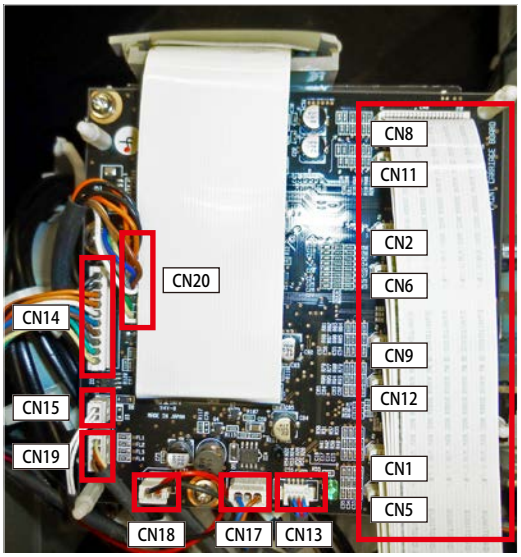
If you do not bundle the ink tubes, they will pull up the print head, and the print head will be tilted.



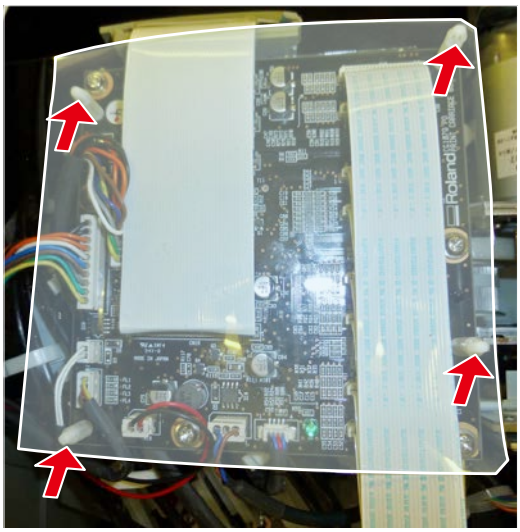
20. Tighten five screws to secure the carriage board.



21. Plug the connectors and connect the ribbon cables.

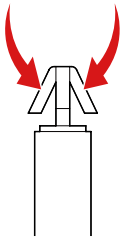


22. Fix the carriage board cover.

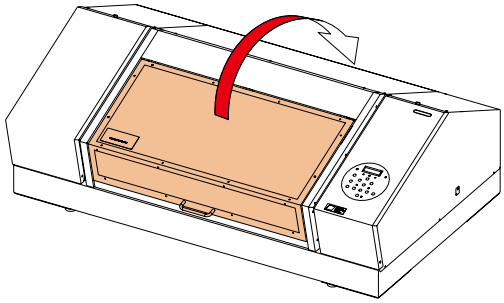


CAUTION

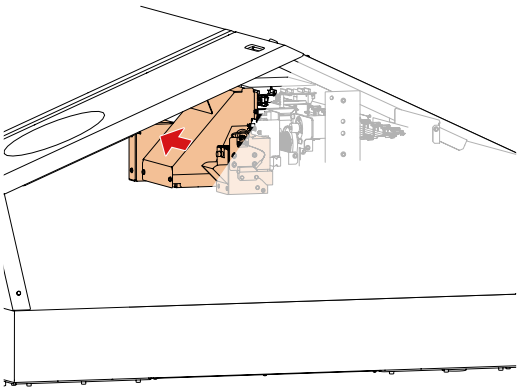
Since the top part of the support is easy to break, make sure to push the part indicated by the arrows when removing the carriage board.



23. Open the cover.



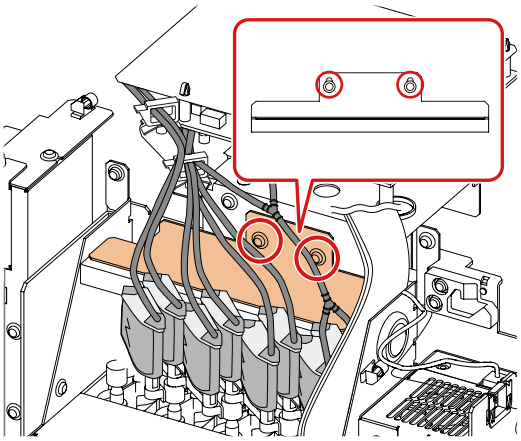
24. Move the head carriage to the left by hand.



25. Tighten two screws to secure the damper plate.

CAUTION

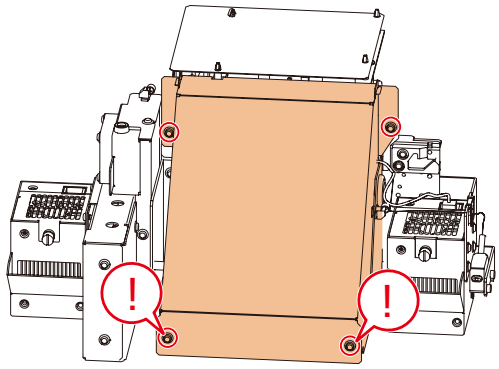
- Gently hold the damper plate while tightening the screws. If you press it down, the dampers may break.
- Tighten the screws at the bottom of the slotted holes.



26. **Loosely tighten four screws to secure the carriage cover, and then fully tighten the screws. Be careful not to tighten them too hard. The cover may become distorted.**

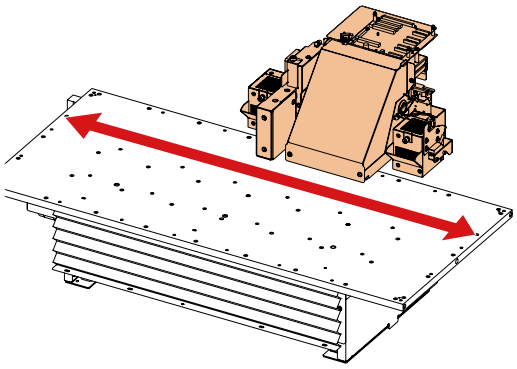
CAUTION

When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



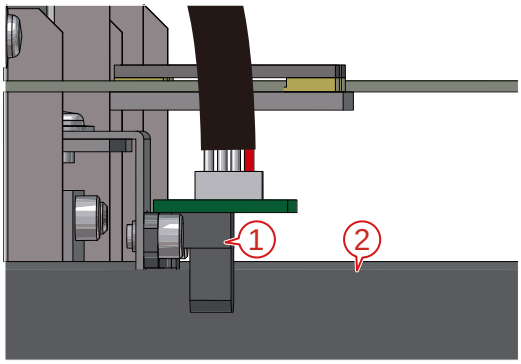
27. **Move the head carriage in the entire width of the machine. Make sure that the encoder scale does not make contact with the encoder sensor and also encoder scale is inside the slit of the encoder sensor.**

27-1. Perform Chapter 2 "Linear Encoder Setup".



Enlarged view of the linear encoder scale and the linear encoder sensor

1. Linear encoder sensor
2. Linear encoder scale



28. **(End of procedure)**

UV Lamp Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **UV lamp replacement**
2. **UV lamp check**
3. **UV lamp height adjustment**

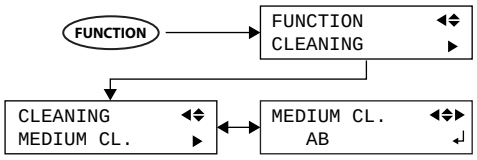
Referential time for work

Contents of work	Time
UV lamp replacement	10 min.
UV lamp check	5 min.
UV lamp height adjustment	20 min.

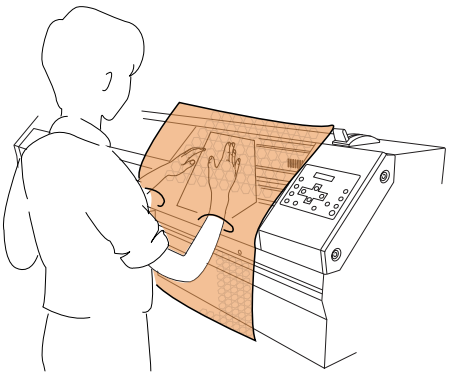
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

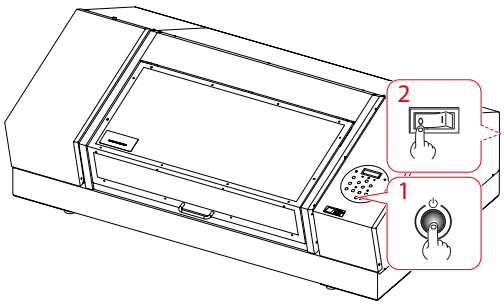


- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

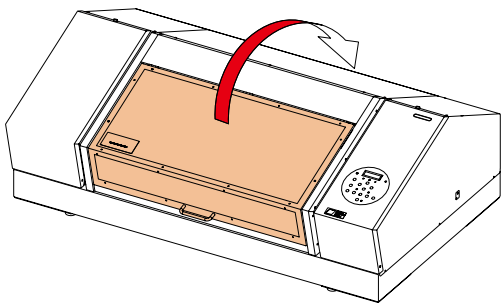


1. Turn off the sub power SW, and then turn off the main power SW.

1. Sub power SW
2. Main power SW



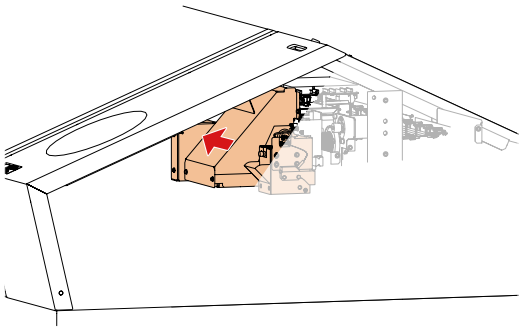
2. Open the cover.



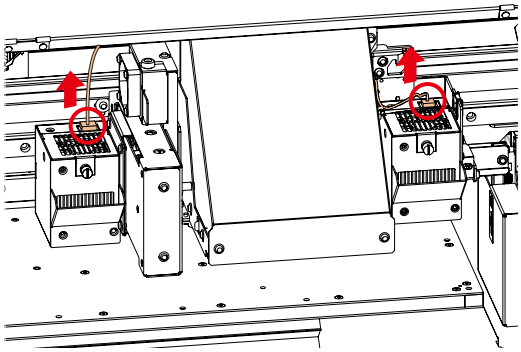
3. Move the head carriage to the left.

CAUTION

Move the head carriage to the position where the head surface doesn't hit the table plate

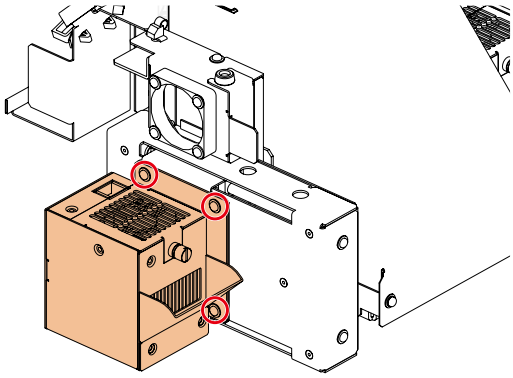


4. Unplug the connectors.

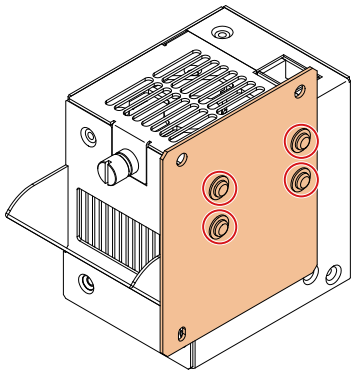


Left UV Lamp Replacement

5. Remove three screws that secure the UV lamp together with the plate.



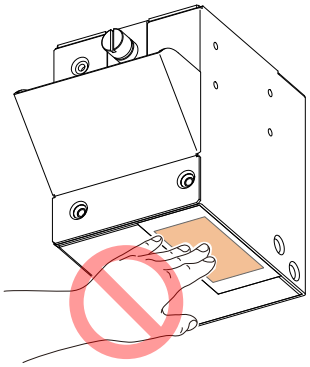
6. Remove four screws. Attach the new UV lamp to the plate.



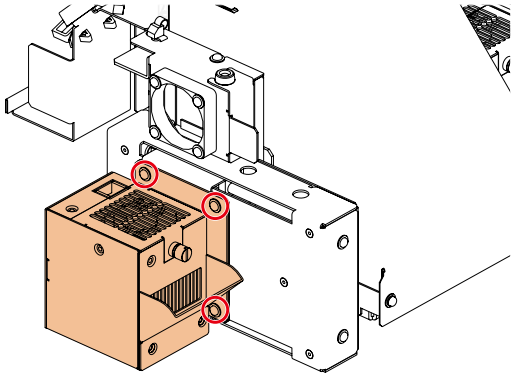
CAUTION

Do not touch the lightemitting face.

Bottom view

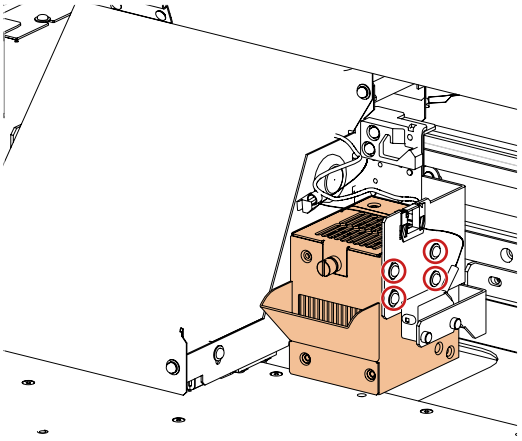


7. Tighten three screws to secure the UV lamp.



Right UV Lamp Replacement

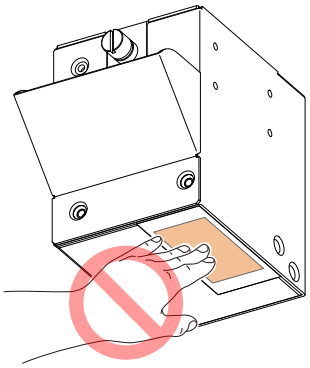
8. Remove four screws. Secure the new UV lamp.



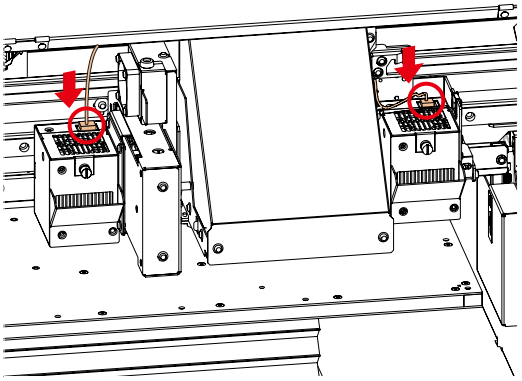
CAUTION

Do not touch the light emitting face.

Bottom view



9. Plug the connectors.



10. Perform the following adjustments.

10-1. Chapter 2 "UV Lamp Check"

10-1. Chapter 2 "UV Lamp Height Adjustment"

11. (End of procedure)

Ink Damper Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Ink damper replacement**

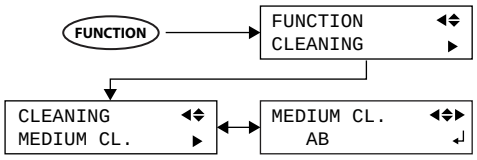
Referential time for work

Contents of work	Time
Ink damper replacement	30 min.

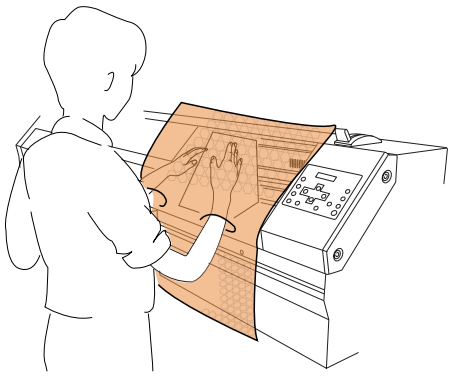
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

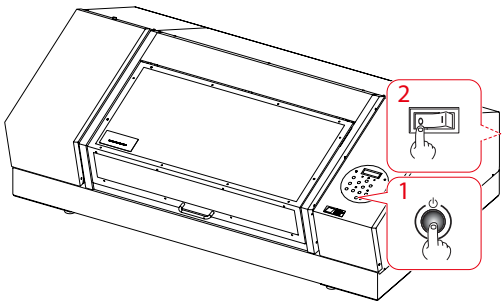


- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

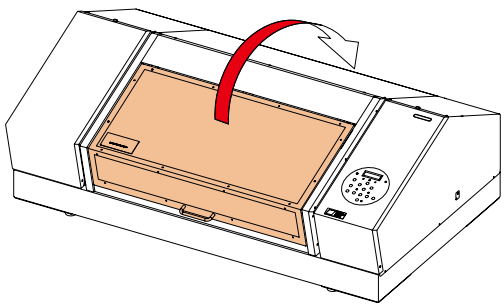


1. **Turn off the sub power SW, then turn off the main power SW.**

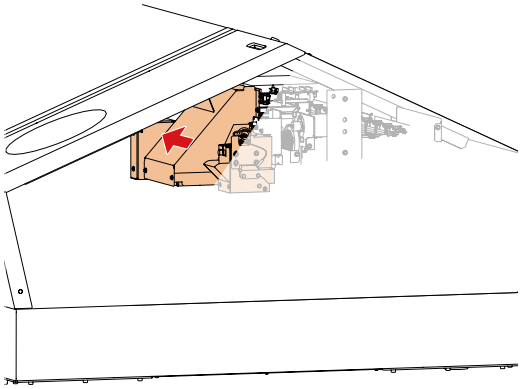
1. Sub power SW
2. Main power SW



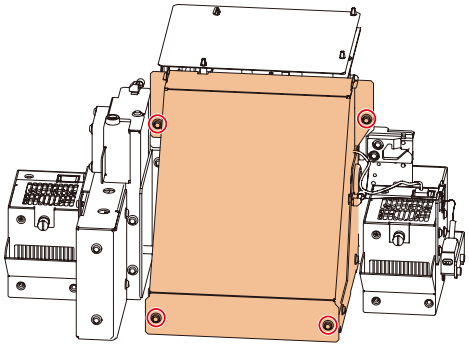
2. **Open the cover.**



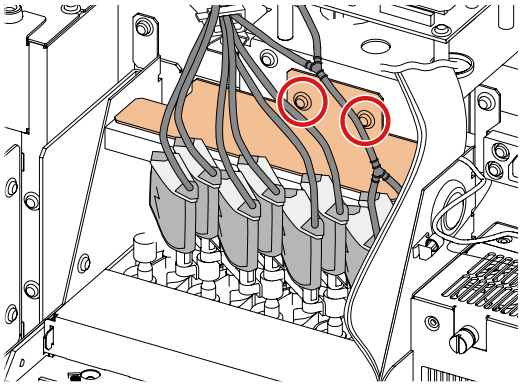
3. Unlock the head carriage, and move it to the left by hand.



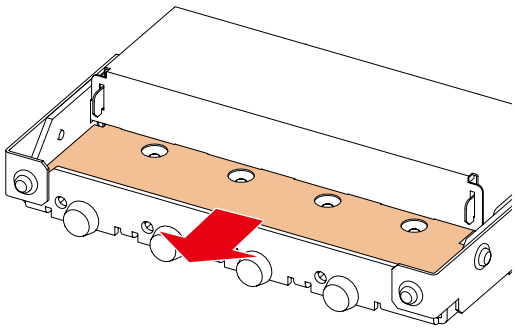
4. Remove four screws that secure the carriage cover.



5. Remove two screws that secure the damper plate.



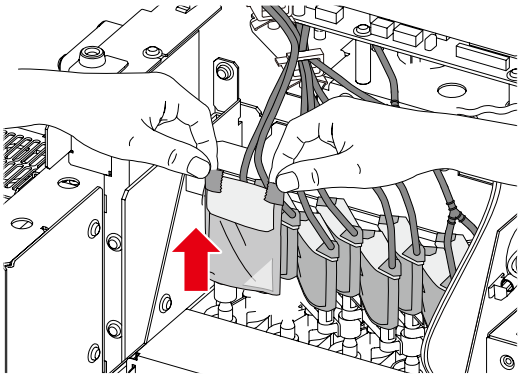
6. Pull the head shield to the front and remove it.



7. Remove two ink dampers from the print head you are going to replace.

CAUTION

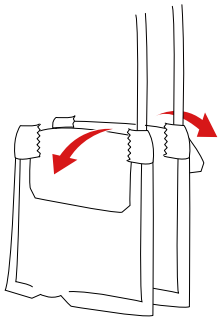
- Ink dampers may break if you grasp them too hard.
- Remove the ink dampers with the head board cover attached. It prevents ink from dripping on the head board. If ink drips on the head board, the print head or the head driving IC will break. Pull the upper end of the damper shield when removing the ink dampers.



8. Pull out the ink damper from the damper shield and set a new ink damper in the damper shield.

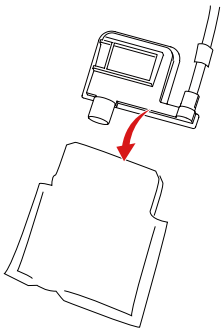
Completion drawing

8-1. The cover part should be outside.

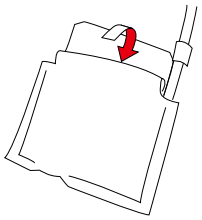


How to set the damper shield

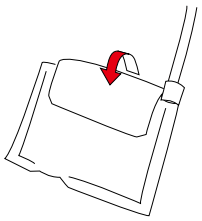
8-2. Put the ink damper in the damper shield.



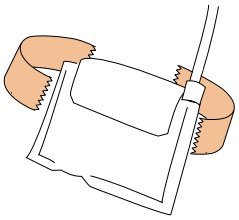
8-3. Fold the cover part to wrap the ink damper.



8-4. Fold the other side.



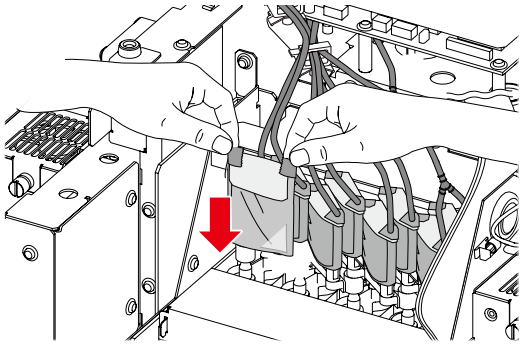
8-5. Close the two gaps with tape.



9. **Attach the ink dampers to the print head.**

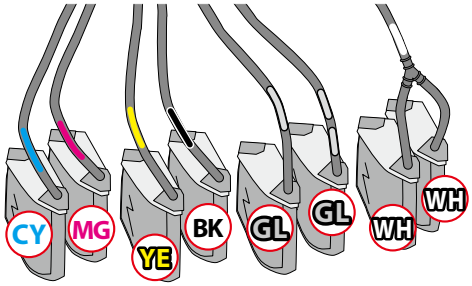
CAUTION

- Ink dampers may break if you grasp them too hard.
- Remove the ink damper with the head board cover attached. It prevents ink from dripping on the head board. If ink drips on the head board, the print head or the head driving IC will break.



NOTE

Attach the ink dampers according to the color mark on the ink tubes.

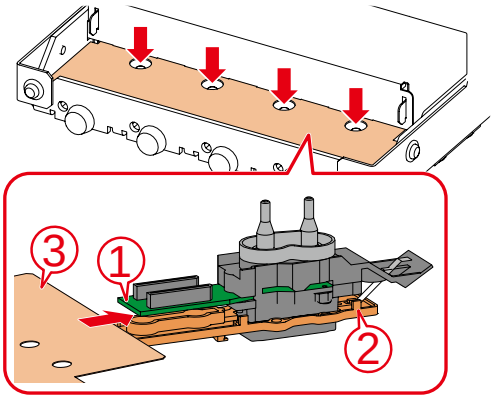


10. **Insert the head shield.**

NOTE

Insert the head shield between the head board and the head adapter. Place it so that the screws can be seen from the screw holes.

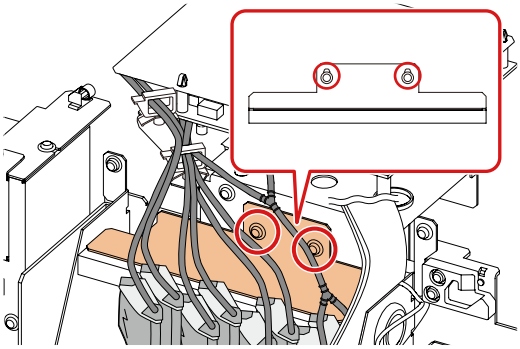
1. Head board
2. Head adapter
3. Head shield



11. **Attach the damper plate.**

CAUTION

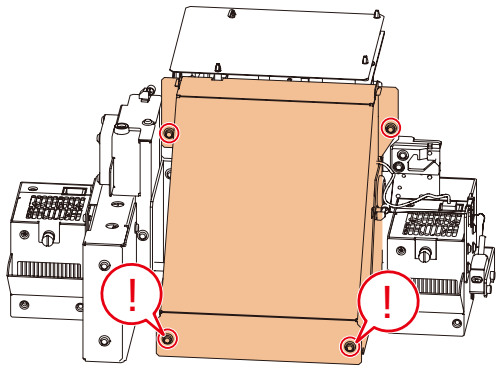
- Do not press it down to the dampers. The dampers may break.
- Tighten the screws at the bottom of the slotted holes.



12. **Loosely tighten four screws, and then fully tighten the screws to secure the carriage cover. Be careful not to tighten them too hard. The cover may become distorted.**

CAUTION

When tightening the two screws on the front, be careful not to tighten them too hard. Doing so may cause the carriage cover to be distorted and the print heads may become shifted.



13. **(End of procedure)**

Laser Pointer Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Laser pointer replacement**
2. **Laser pointer position adjustment**
3. **Print area adjustment**

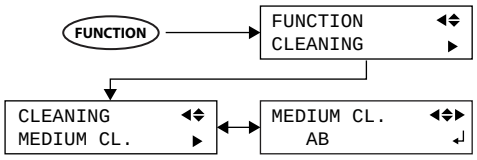
Referential time for work

Contents of work	Time
Laser pointer replacement	10 min.
Laser pointer position adjustment	5 min.
Print area adjustment	15 min.

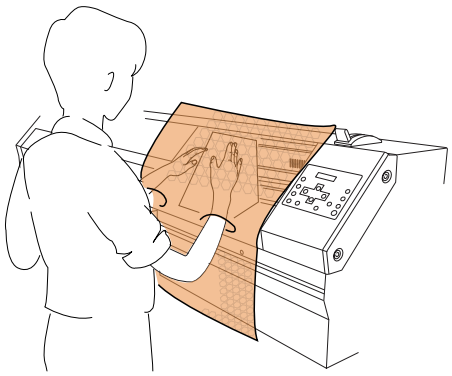
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

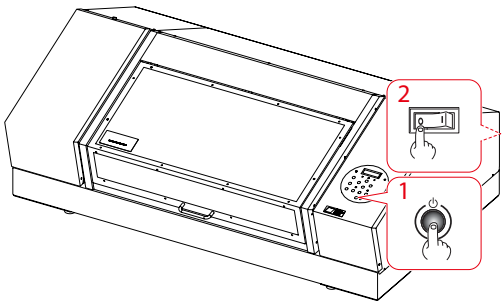


- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

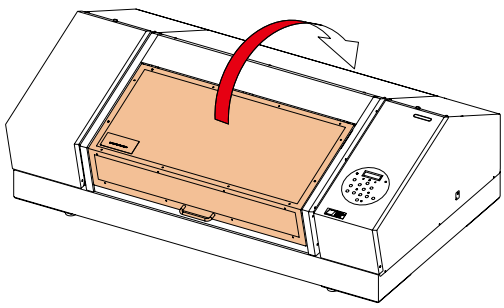


1. **Turn off the sub power SW, then turn off the main power SW.**

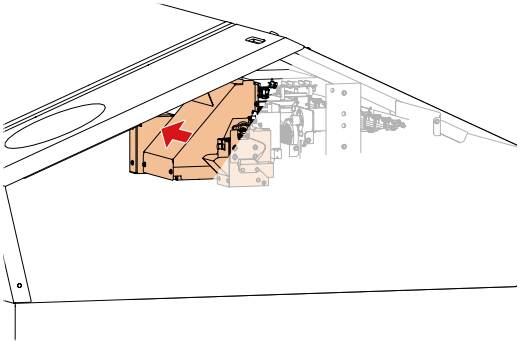
   1. Sub power SW
   2. Main power SW



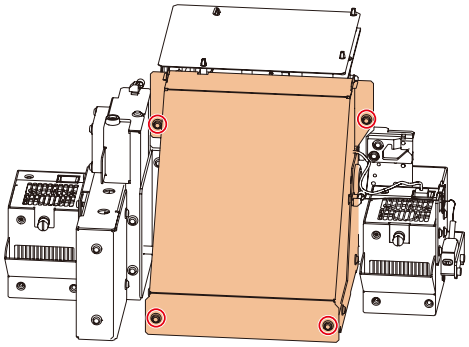
2. **Open the cover.**



3. Move the head carriage slowly leftwards by hand.

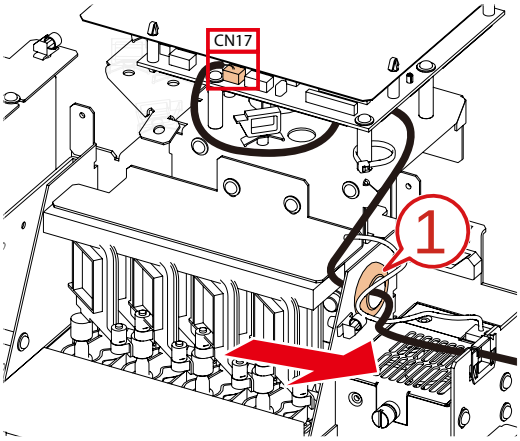


4. Remove four screws that secure the carriage cover.



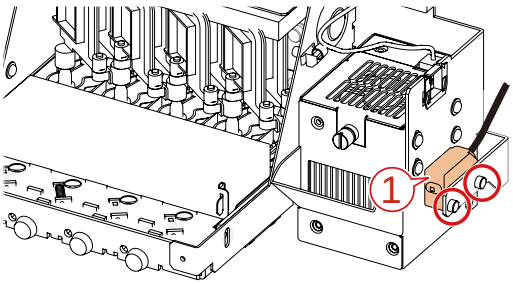
5. Disconnect the laser pointer cable from the carriage board then pass the cable through the grommet.

1. Grommet



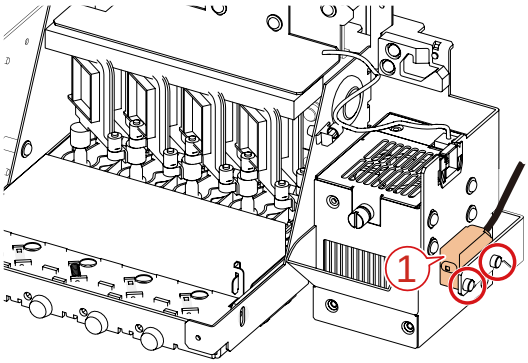
6. Remove two screws that secure the laser pointer.

1. Laser pointer



7. Tighten two screws to secure the laser pointer.

1. Laser pointer

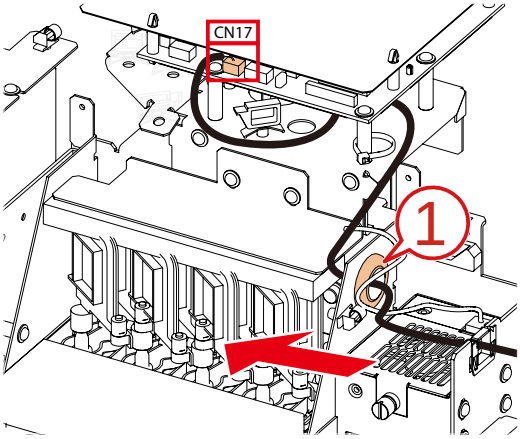


8. Pass the laser pointer cable through the grommet, and connect it to the carriage board.

CAUTION

Pass the cable through the clamp.

1. Grommet



9. Perform the following adjustments.

9-1. Chapter 2 "Laser Pointer Position Adjustment"

9-2. Chapter 2 "Print Area Adjustment"

10. (End of procedure)

Head Gap Sensor Replacement ⚠5

Information

Necessary tools

General tools
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. Head gap sensor replacement

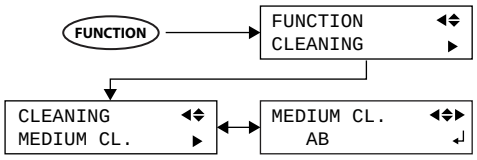
Referential time for work

Contents of work	Time
Head gap sensor replacement	15 min.

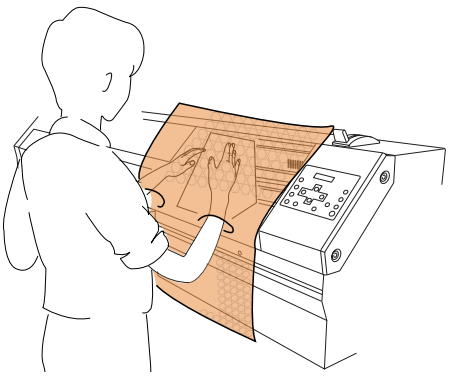
Procedure

CAUTION

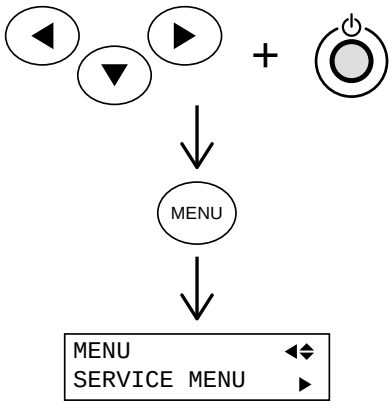
- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



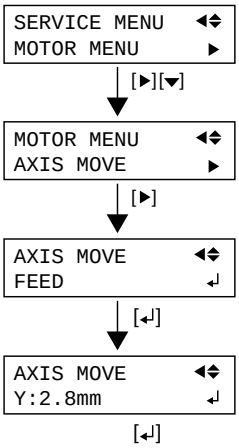
- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.



1. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.

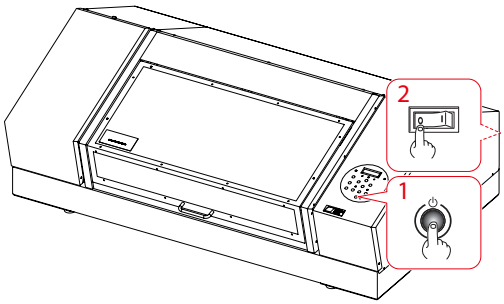


2. **Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED], and set the value to [Y:2.8mm] to move the table backward.**

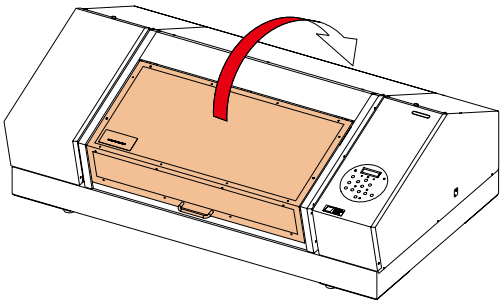


3. **Turn off the sub power SW, then turn off the main power SW.**

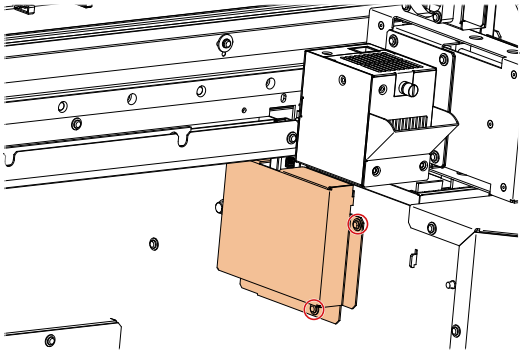
1. Sub power SW
2. Main power SW



4. **Open the cover.**



5. **Remove two screws that secure the cover.**

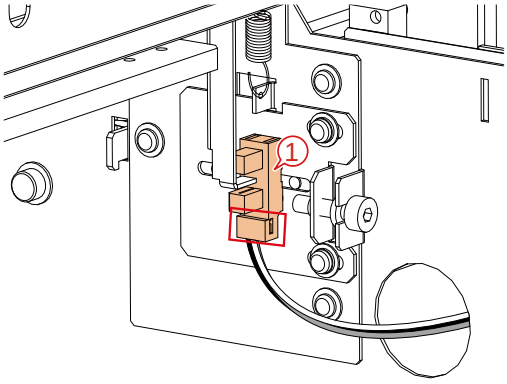


☞ For Serial No. ZDE1196 or earlier, move on to step 6 below, and for Serial No. ZDE1197 or later, move on to step 6 on page 1-90.

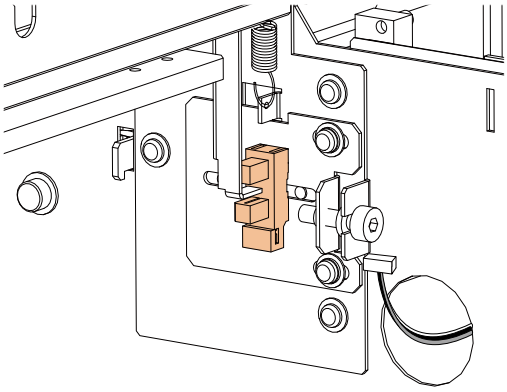
Serial No. ZDE1196 or earlier

6. **Unplug the connector from the head gap sensor.**

1. Head gap sensor

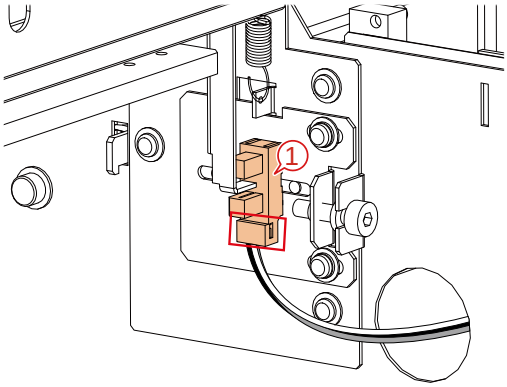


7. **Remove the head gap sensor from the stay. Then, fix a new head gap sensor to the stay.**



8. **Plug the connector to the new head gap sensor.**

1. Head gap sensor



9. **Perform the following adjustment.**

9-1. Chapter 2 "Head Gap Sensor Position Adjustment"

10. **(End of procedure)**

9. **Perform the following adjustment.**

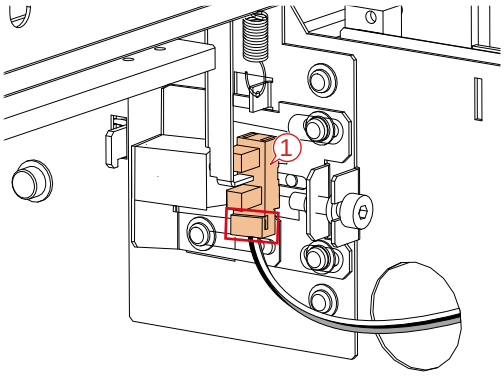
9-1. Chapter 2 "Head Gap Sensor Position Adjustment"

10. **(End of procedure)**

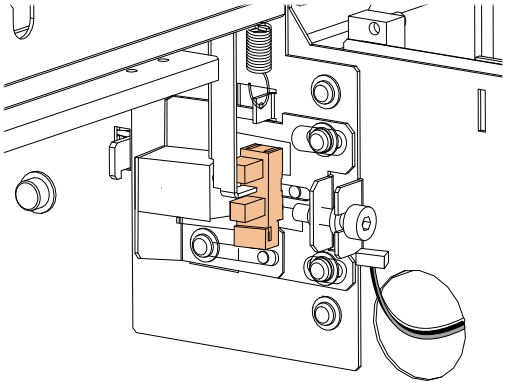
Serial No. ZDE1197 or later

6. **Unplug the connector from the head gap sensor.**

1. Head gap sensor

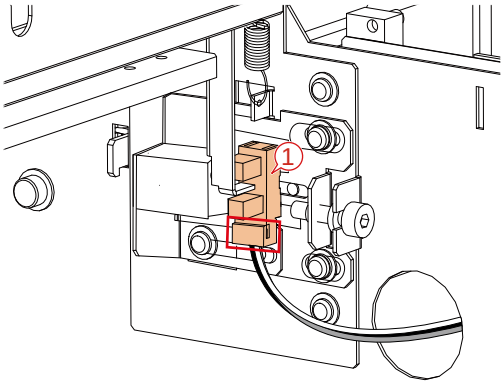


7. **Remove the head gap sensor from the stay. Then, fix a new head gap sensor to the stay.**



8. **Plug the connector to the new head gap sensor.**

1. Head gap sensor



Feed Motor Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver (Length: 200 mm or longer)
2.0 mm hexagonal wrench
(2.0 mm pin)

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Feed motor replacement**
2. **Aging check**
3. **Clearing the motor time**
4. **Print area adjustment**

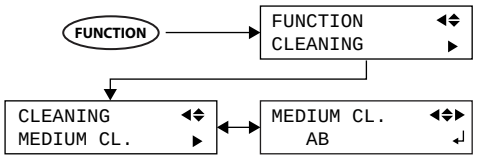
Referential time for work

Contents of work	Time
Feed motor replacement	25 min.
Aging check	5 min.
Clearing the motor time	1 min.
Print area adjustment	15 min.

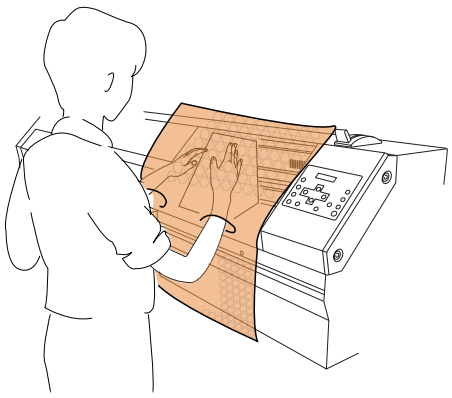
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

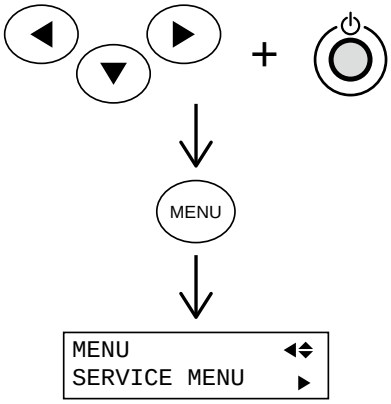


- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

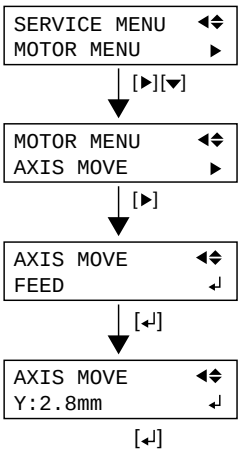


Feed Motor Replacement

5. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**

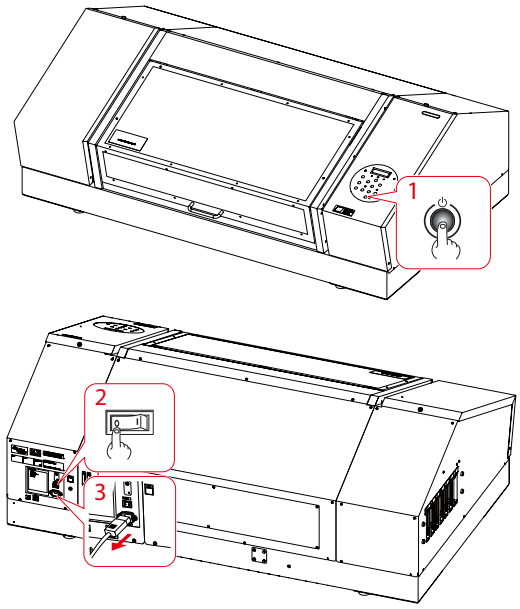


6. **Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the value to [Y:2.8 mm] to move the table to the rear.**

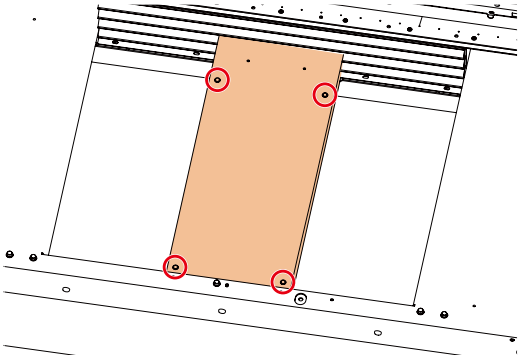


7. **Turn off the sub power SW, and then turn off the main power SW. Unplug the power code.**

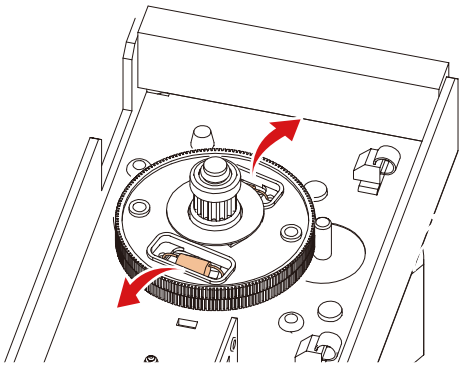
1. Sub power SW
2. Main power SW
3. Power code



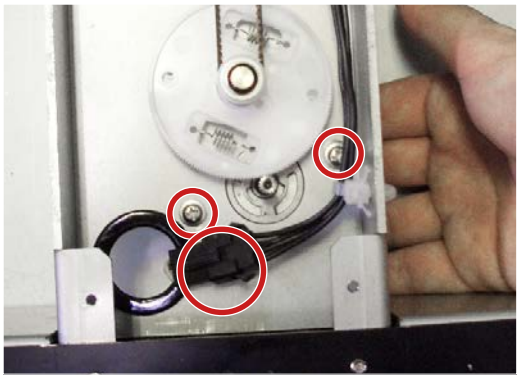
8. **Remove four screws that secure the cover.**



9. **Remove the springs.**



10. **Unplug the connector. Remove two screws that secure the feed motor.**



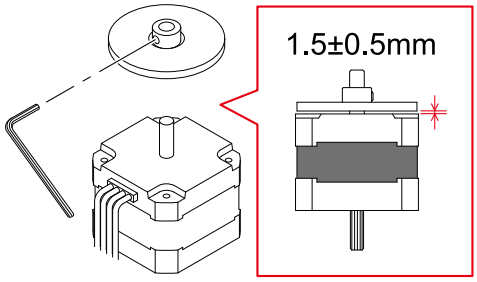
NOTE

Put your hand through under the rail, remove the Y motor, and pull it out.

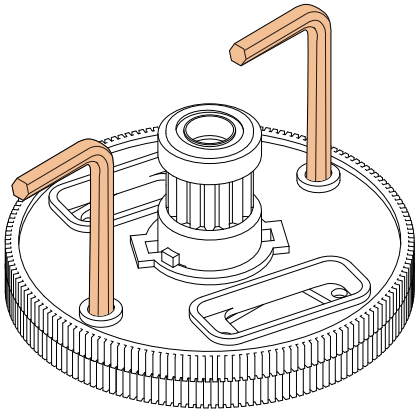
11. Attach a new damper to a new motor.

CAUTION

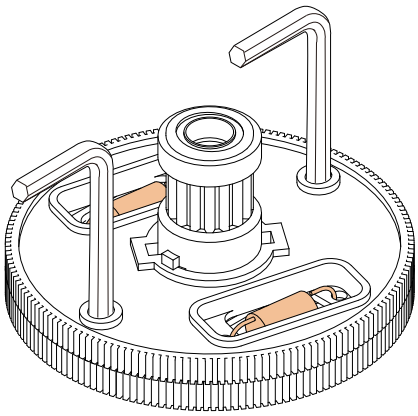
- Replace the damper and the motor together. The damper cannot be removed once it is attached.
- Space out 1.5 ± 0.5 mm between the motor and the damper.



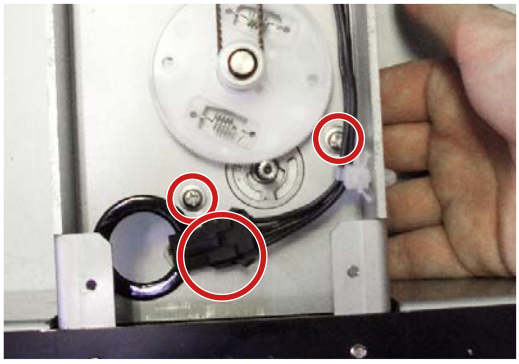
12. Turn the double-gear by hand and align the holes of the upper gear and the lower gear. Then, insert hexagonal wrenches (or pins) into the holes.



13. Attach the springs.



14. Tighten two screws to secure the feed motor. Then, plug the connector.

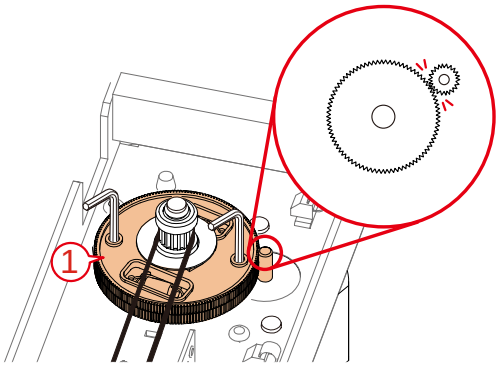


15. Make sure that the gears mesh properly.

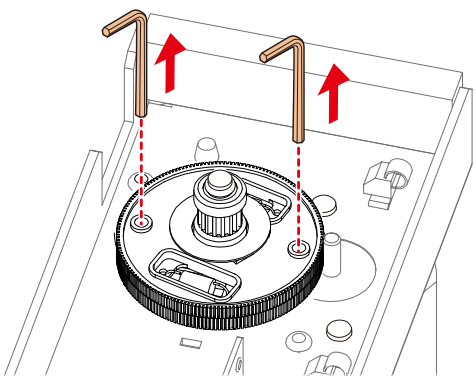
CAUTION

When fixint the motor, make sure that there is no backlash. Also, make sure that an excess load is not applied to the gears.

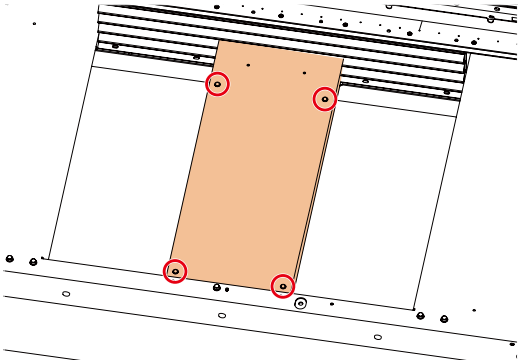
1. Double gear



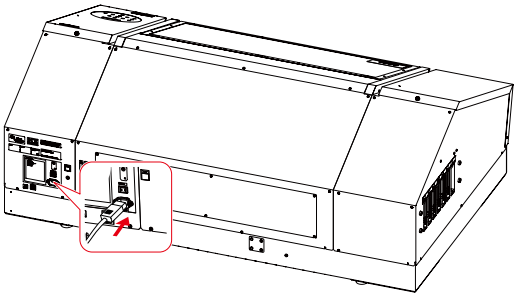
16. Remove the hexagonal wrenches (or pins).



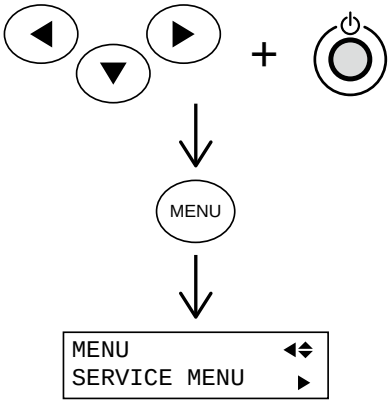
17. Tighten four screws to secure the cover.



18. Plug the power code.



19. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.

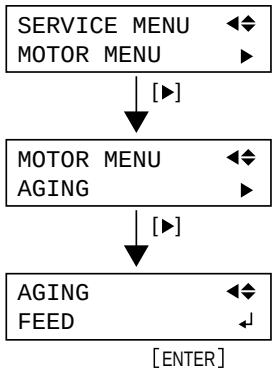


Aging Check

20. Select [SERVICE MENU] > [MOTOR MENU] > [AGING] > [FEED], and press the [ENTER] key. Confirm that the machine performs aging, then exit the menu.

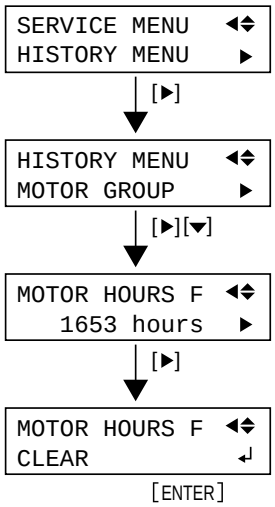
CAUTION

Remove media before performing aging.



Clearing the Motor Working Hours

21. Go back to [SERVICE MENU]. Select [HISTORY MENU] > [MOTOR GROUP] > [MOTOR HOURS F] > [CLEAR] and press the [ENTER] key. The motor working hours will be reset to 0.



22. (End of procedure)

Table Unit Replacement

Information

Necessary tools

General tools
No.2 Phillips screwdriver (200 mm or longer)
2.0 mm hexagonal wrench
(Pin 2.0 mm)

Special tools	
3000000188	SPACER,SHIM RING RF004010010

Workflow

1. Table unit replacement

Referential time for work

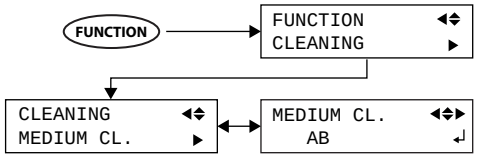
Contents of work	Time
Table unit replacement	15 min.

Procedure

CAUTION

- In addition to the ordinary tools, a Phillips screwdriver with a length of 200 mm or longer is necessary.

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



- Always use the UV protection sheet during this replacement, or ink will harden and clog inside the ink line.

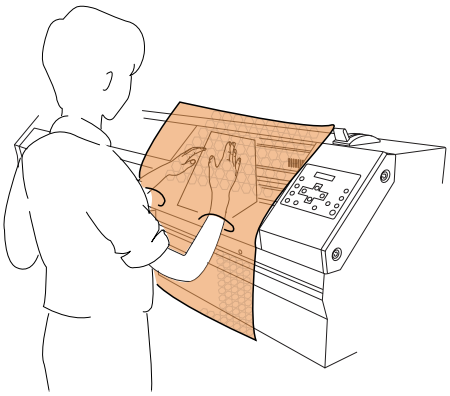
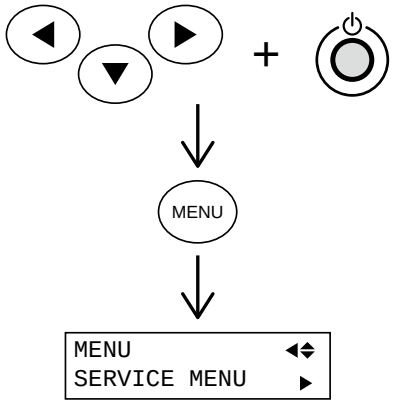
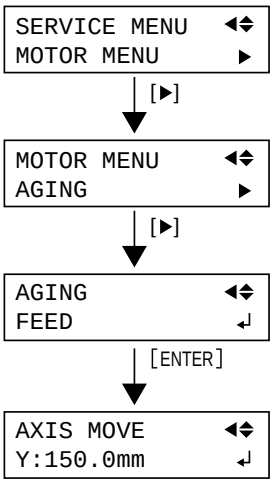


Table Unit Replacement

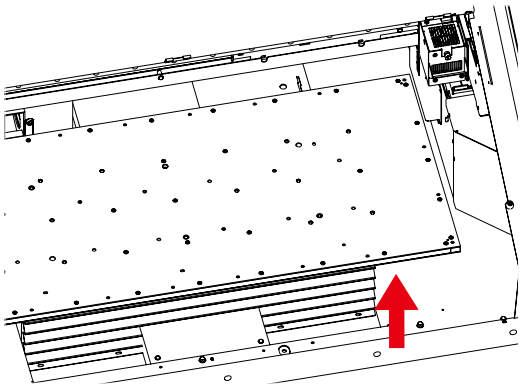
1. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



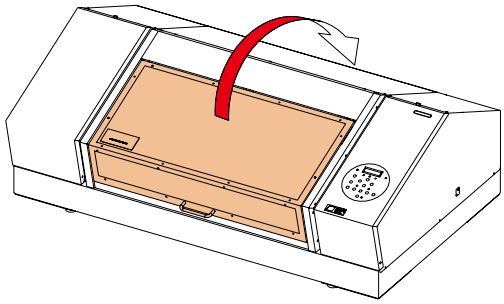
Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the value to [Y:150.0 mm] to move the table to center of the machine.



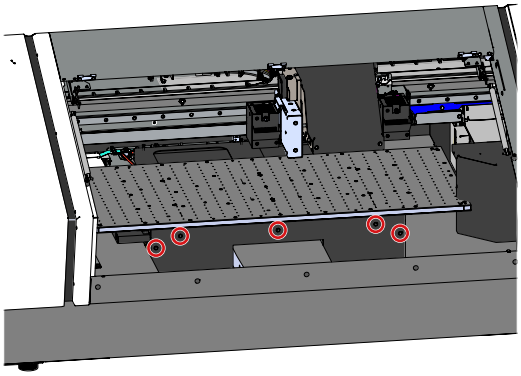
2. Move the table unit to the front end by pressing the [TABLE UP] key.



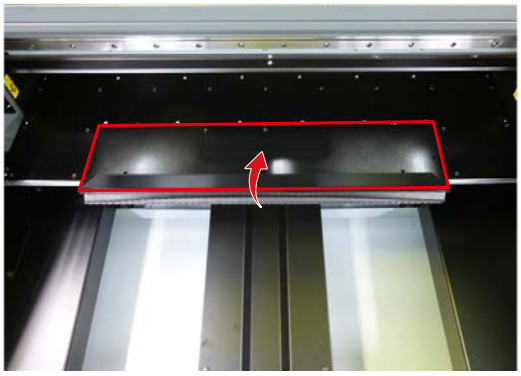
3. Open the cover.



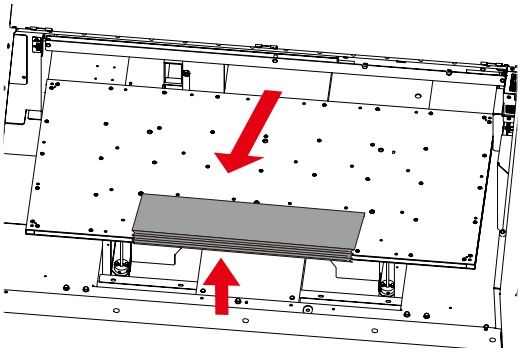
4. Remove five screws that secure the cover.



5. Place the cover and the plate on the table unit.

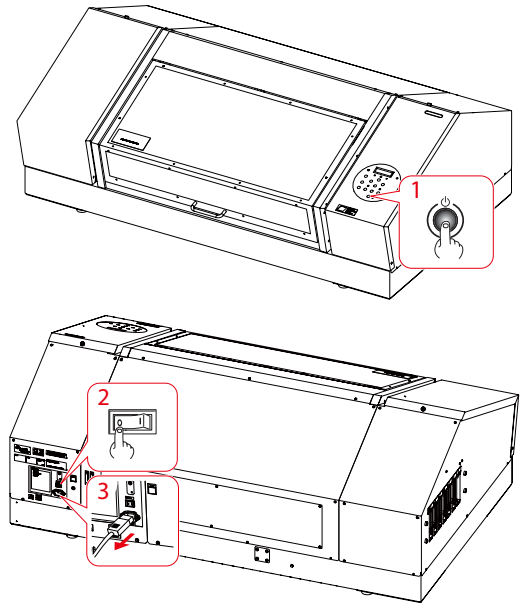


6. Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and set the value to [102.0 mm] and move the table unit to the front end by pressing the [▼] key.



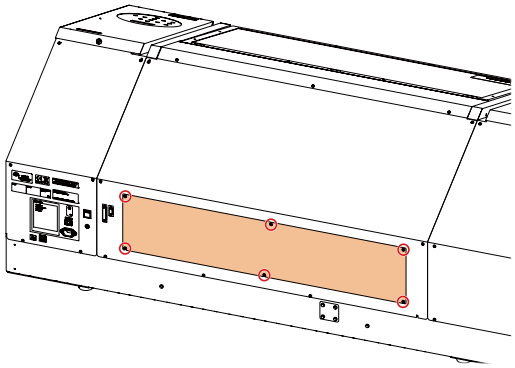
7. **Turn off the sub power SW and main power SW. Unplug the power code.**

1. Sub power SW
2. Main power SW
3. Power code



8. **Remove six screws that secure the plate.**

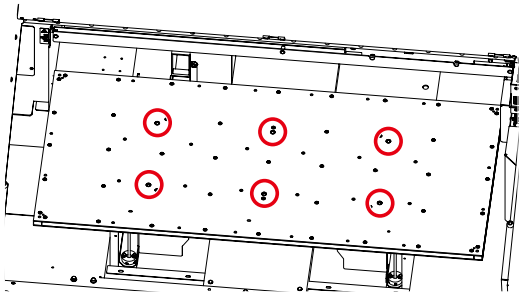
Rear view



9. **Remove six screws that secure the table plate.**

CAUTION

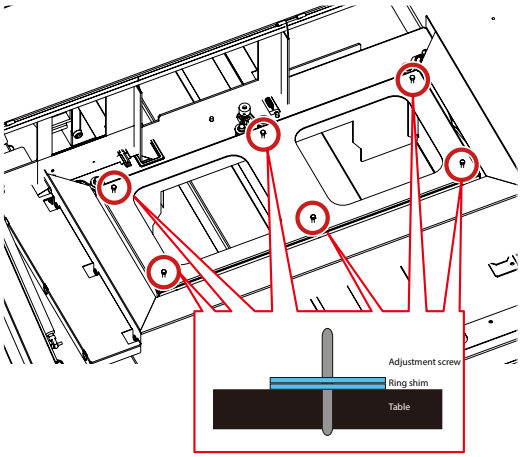
Ring shims are slipped between the table plate and the surface of the table unit.



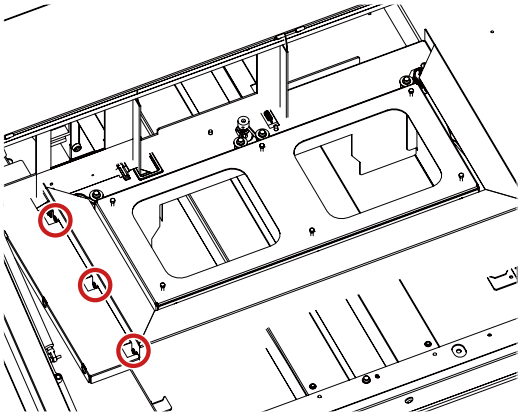
10. **Remove the ring shims on the table unit with tweezers.**

CAUTION

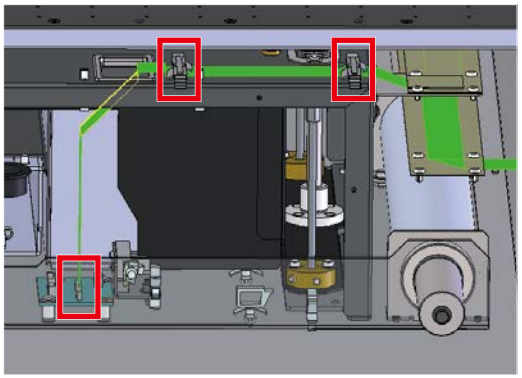
Before removing the ring shims, check how many ring shims are placed in each location so that you can put them back to where they were later.



11. **Remove three screws that secure the table unit cable cover.**

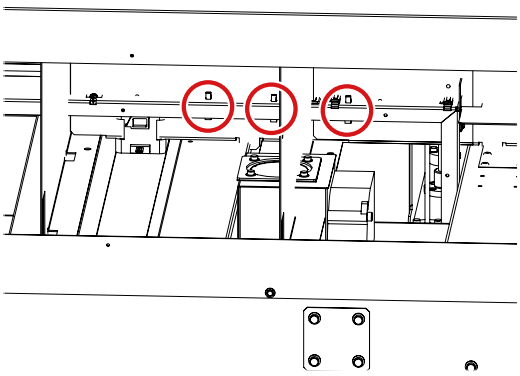


12. **Open the clamps and disconnect the ribbon cables.**

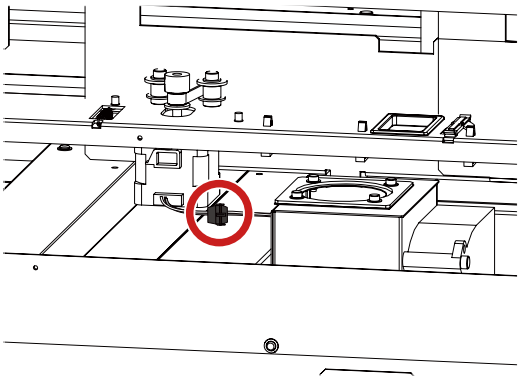


13. Remove two screws that secure the plate bundling the ribbon cables.

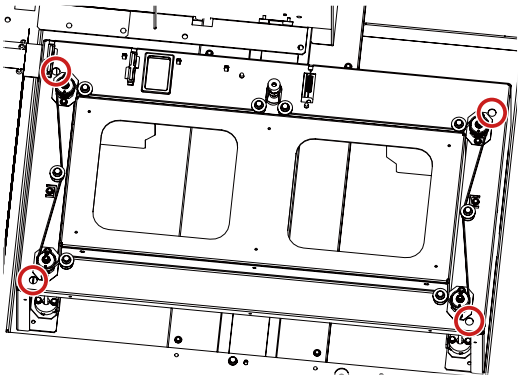
14. Detach the clamps.



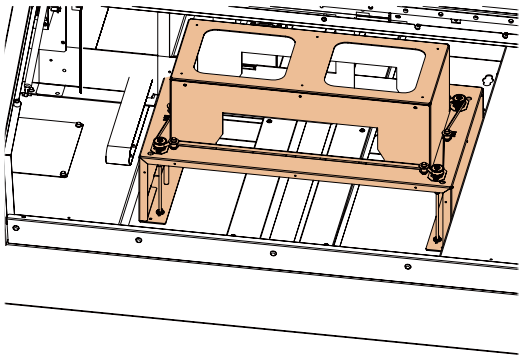
15. Unplug the connector of the motor.



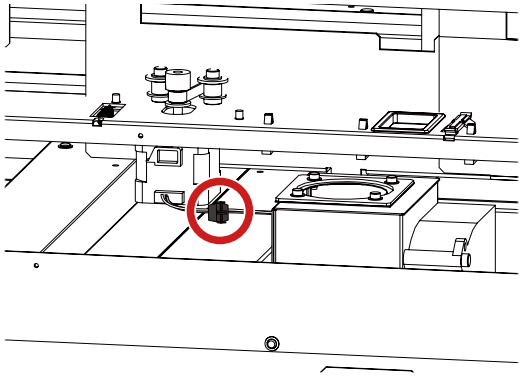
16. Attach the table unit with four screws with a Phillips screwdriver with a length of 200 mm or longer.



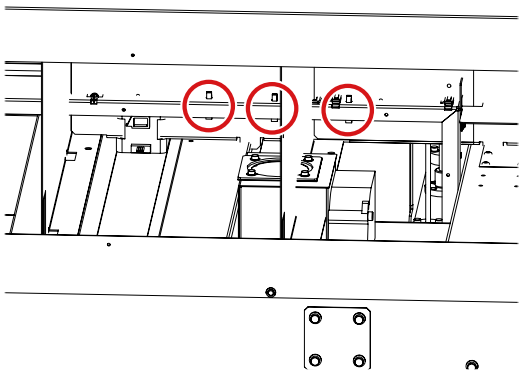
17. Remove the table unit. Tighten four screws to secure the new table unit.



18. Plug the connector of the motor.

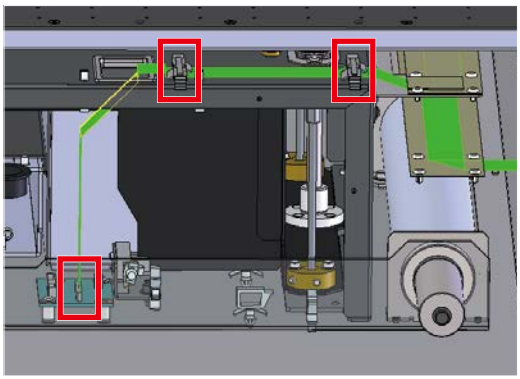


19. Attach the clamps.

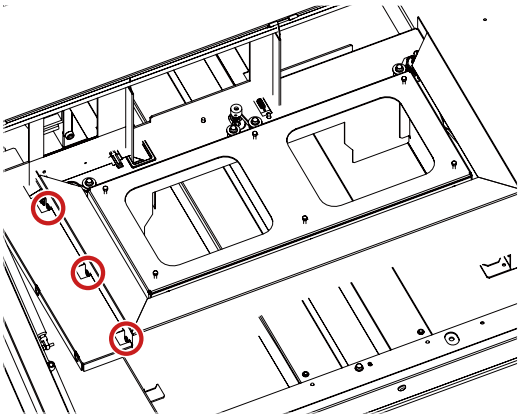


20. Tighten two screws to secure the plate.

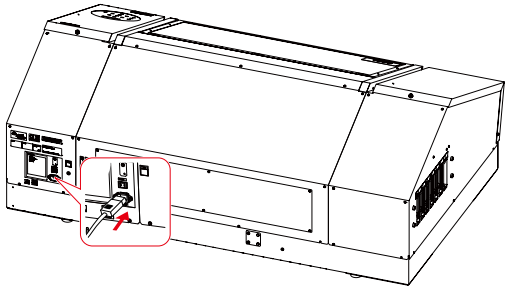
21. Open the clamps. Connect the ribbon cables. Close the clamps.



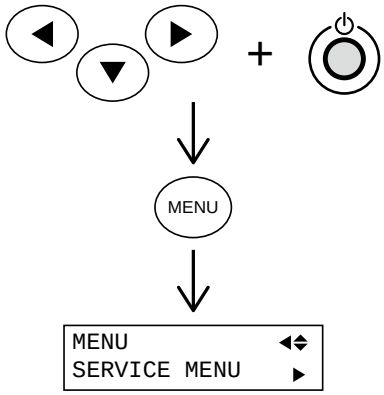
22. Tighten three screws to secure the table unit cable cover.



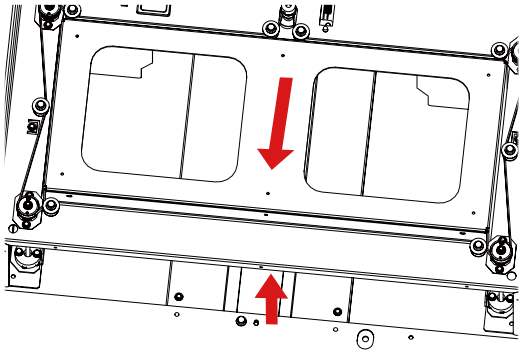
23. Plug the power code.



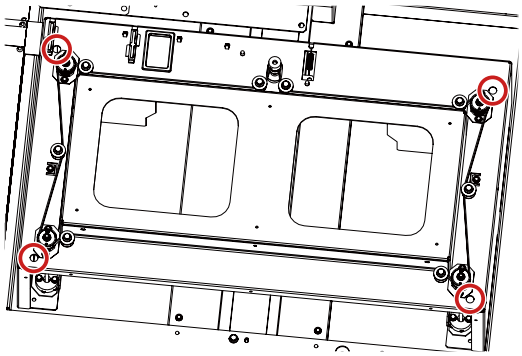
24. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



25. Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the value to [102.0 mm] to move the table to the front end.

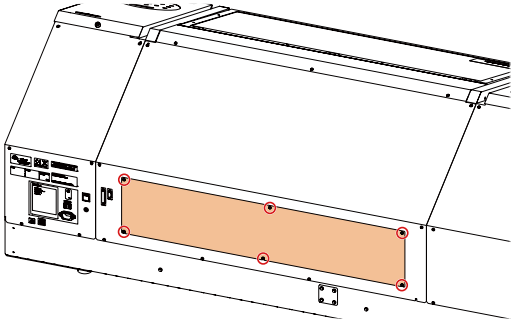


26. Attach the table unit with four screws with a Phillips screwdriver with a length of 200 mm or longer.

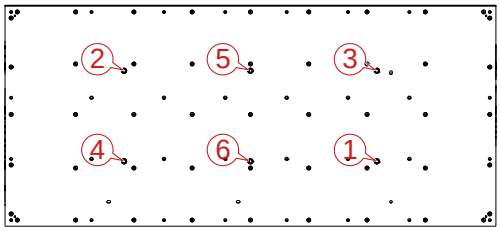


27. Tighten six screws to secure the plate.

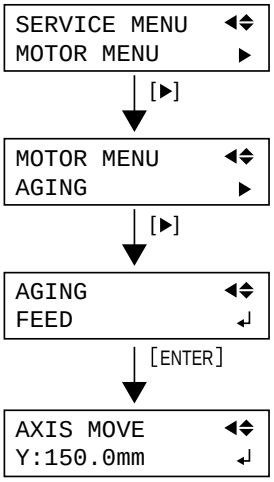
Rear view



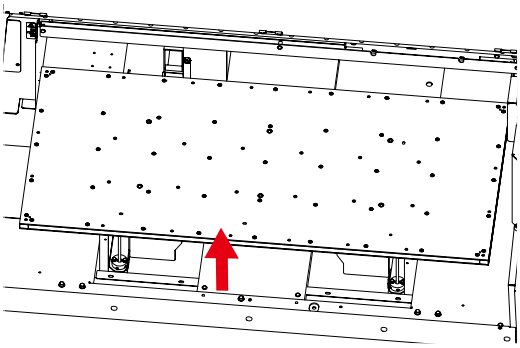
28. Tighten six screws in the order shown below to secure the table plate.



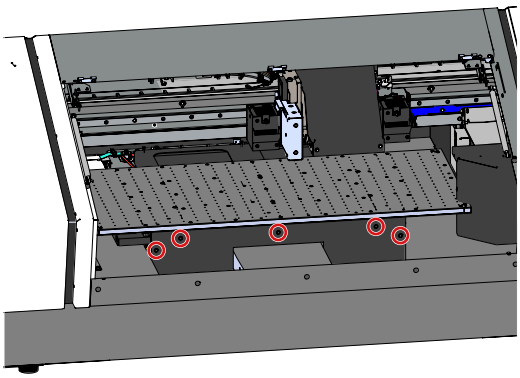
Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the value to [Y:150.0 mm] to move the table to the center of the machine.



29. Move the table up until it does not go any further by pressing the [TABLE UP] key.



30. Tighten five screws to secure the cover.

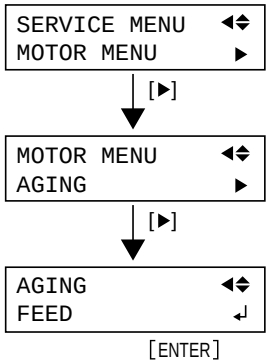


Aging check

31. Select [SERVICE MENU] > [MOTOR MENU] > [AGING] > [FEED] and press the [ENTER] key. Make sure that the machine performs aging and finishes it.

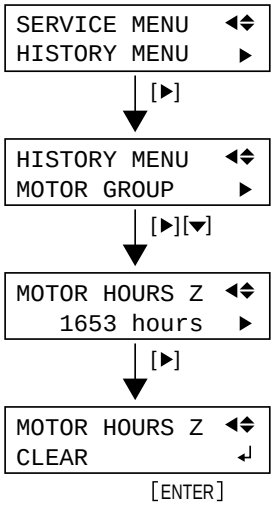
CAUTION

Do not load the media when performing [AGING].



Clearing the Motor Working Hours

32. Go back to the Service Menu, and select [HISTORY MENU] > [MOTOR GROUP] > [MOTOR HOURS F] > [CLEAR] and press the [ENTER] key. The motor working hours will be reset to 0.



33. Perform the following check.

- **33-1.** Chapter 2 "Table Height Adjustment"
- **33-2.** Chapter 2 "Print Head Height Adjustment"
- **33-3.** Chapter 2 "Print Head Alignment (horizontal only)"
- **33-4.** Chapter 2 "UV Lamp Height Adjustment"
- **33-5.** Chapter 2 "Head Gap Sensor Position Adjustment"
- **33-6.** Chapter 2 "Print Area Adjustment"

34. (End of procedure)

Chapter 2 Adjustment

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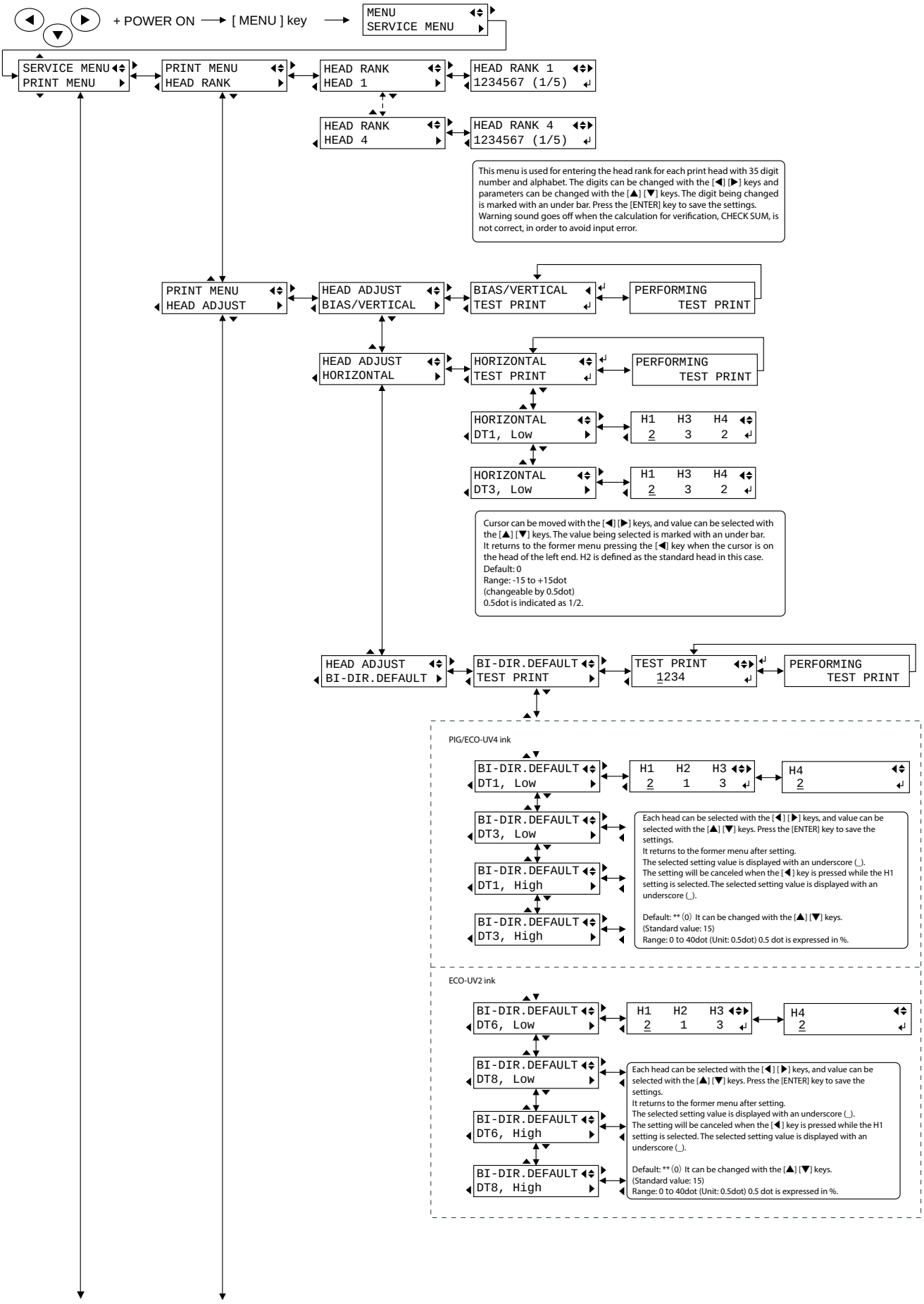
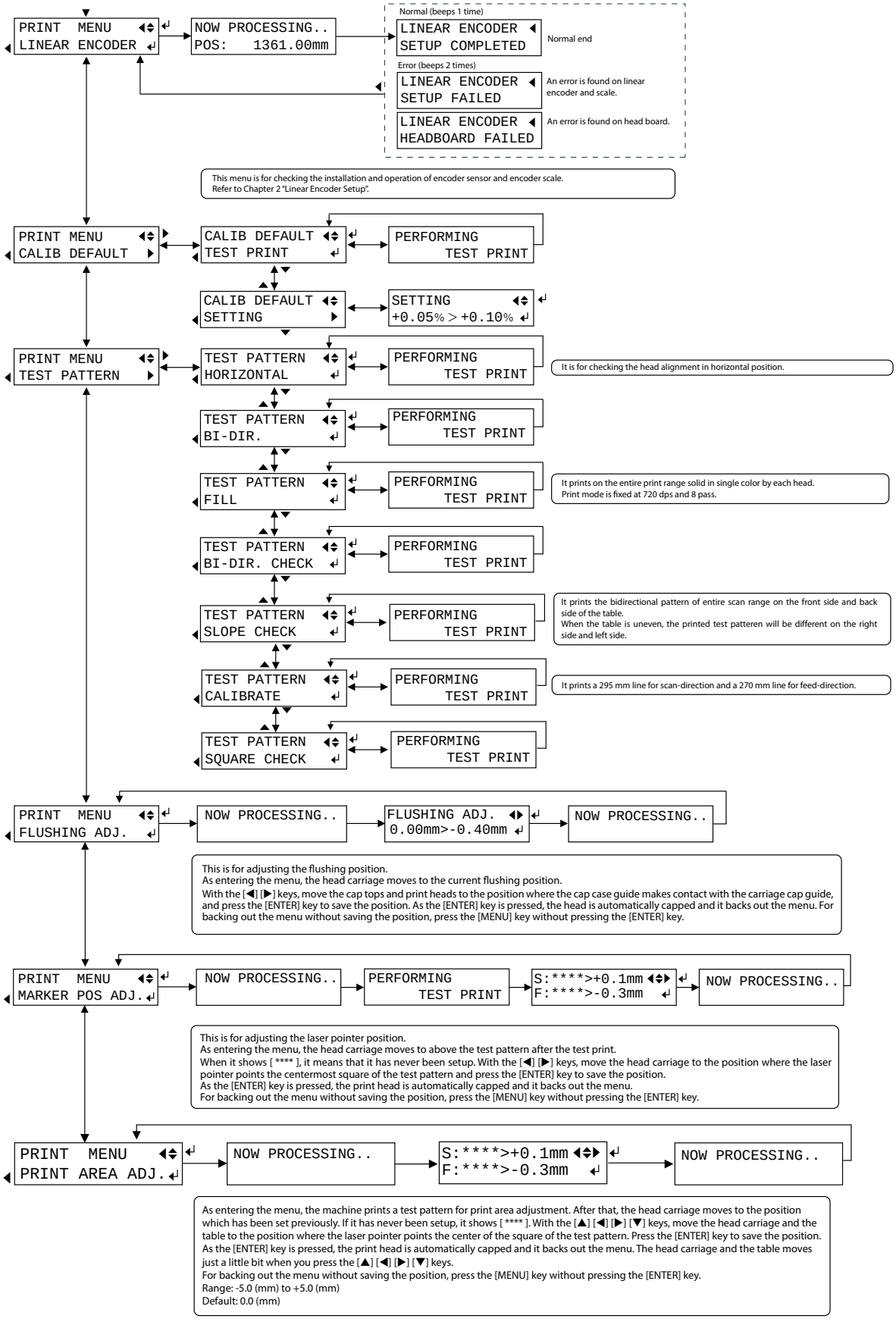
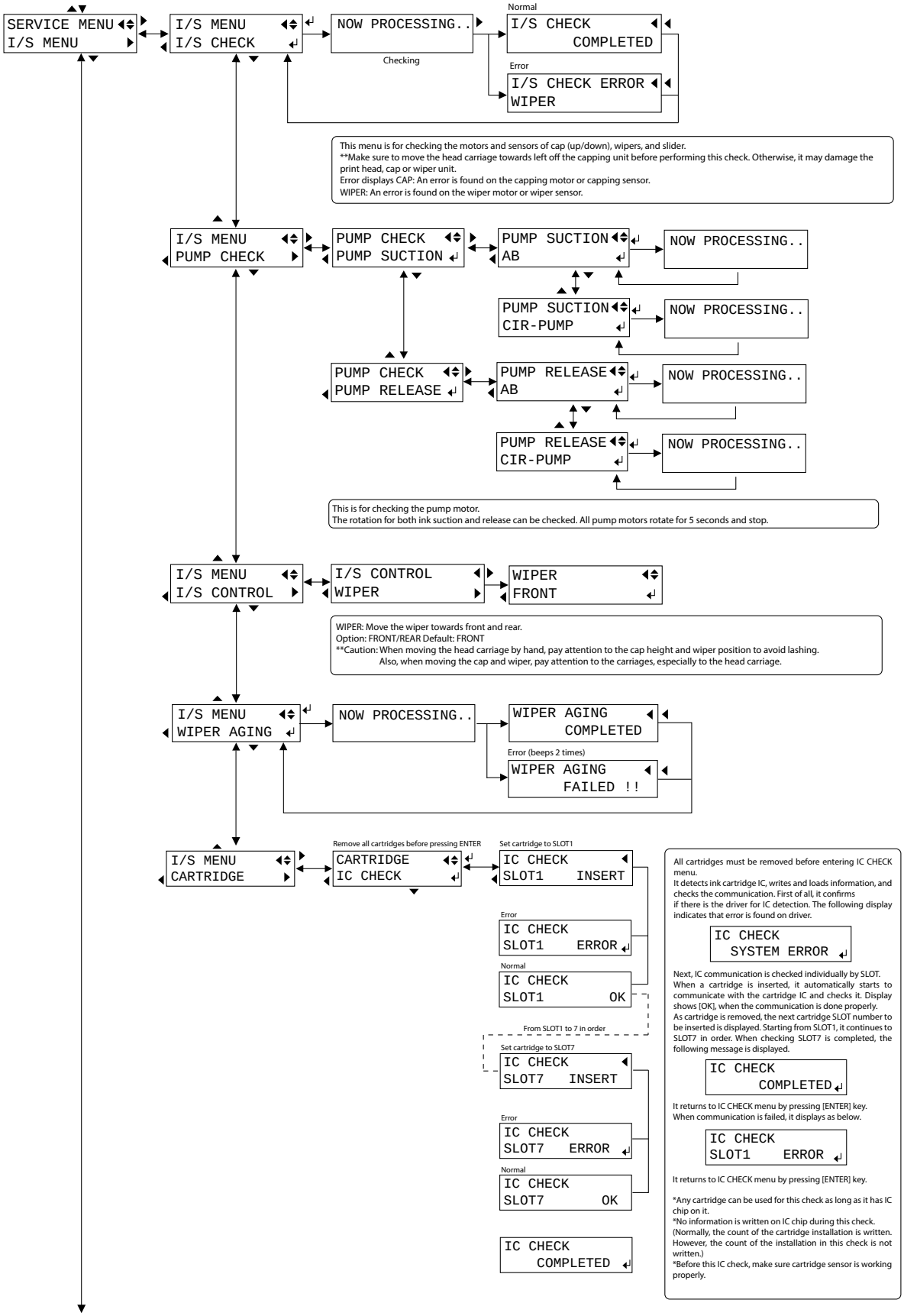
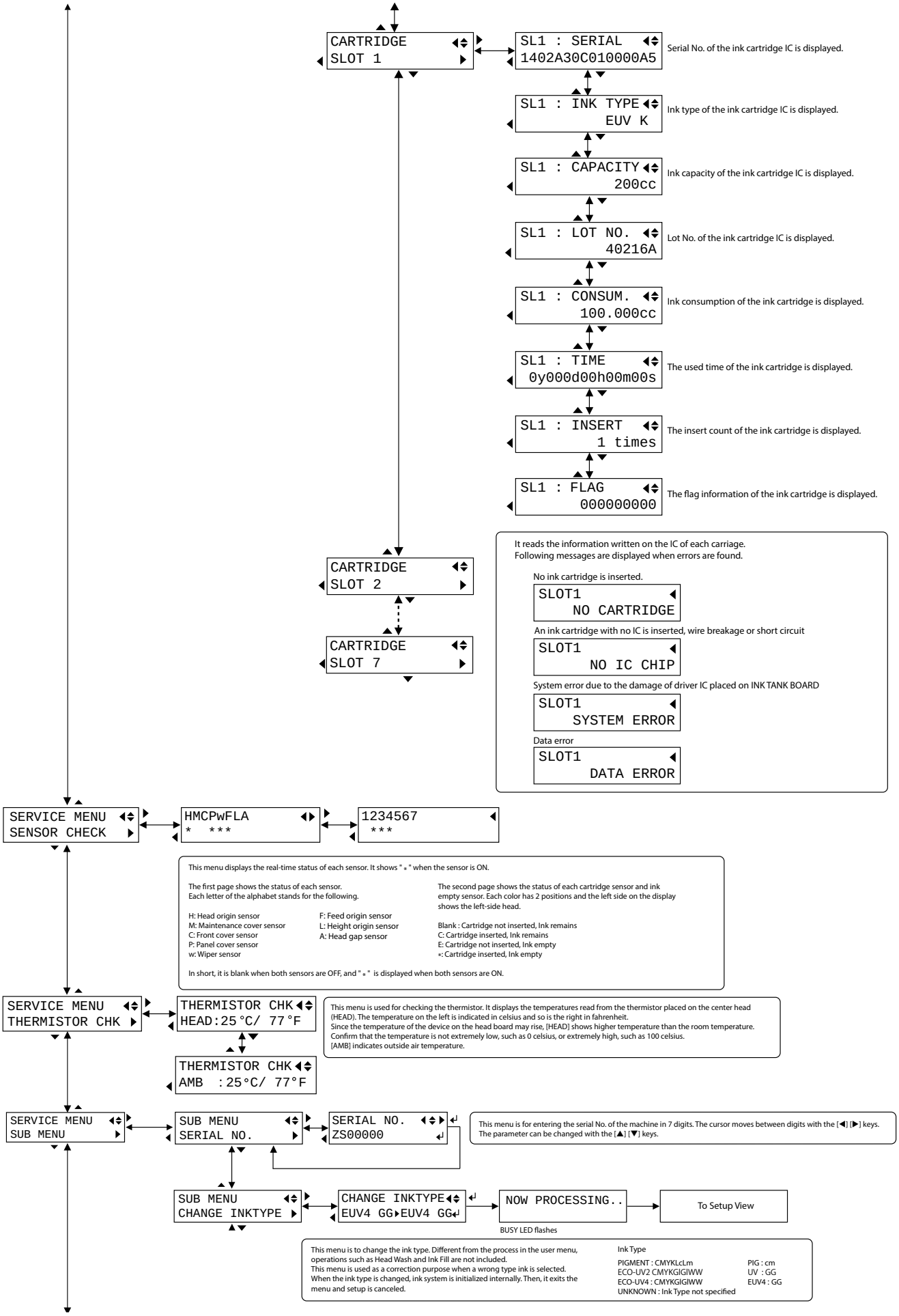
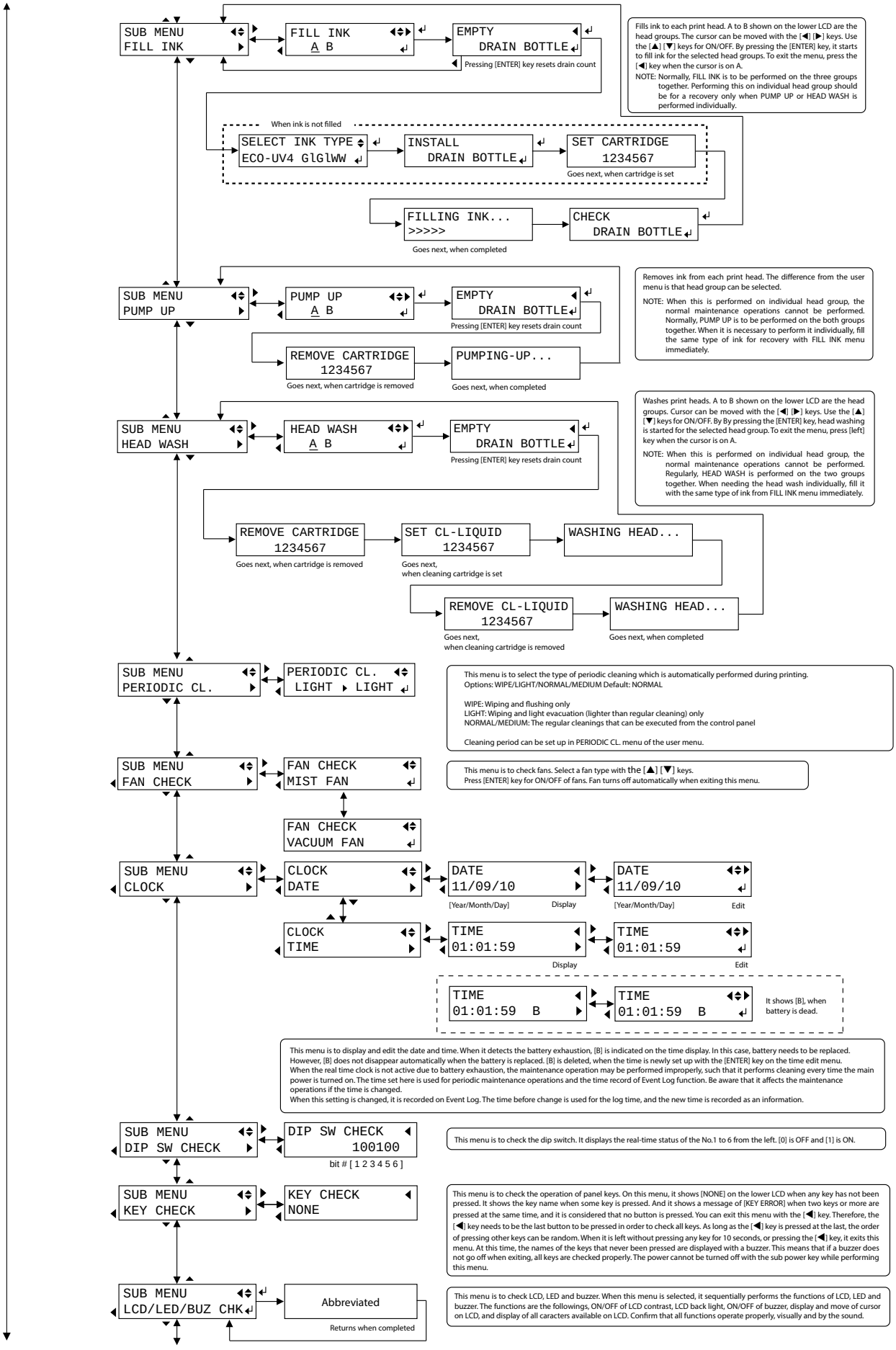
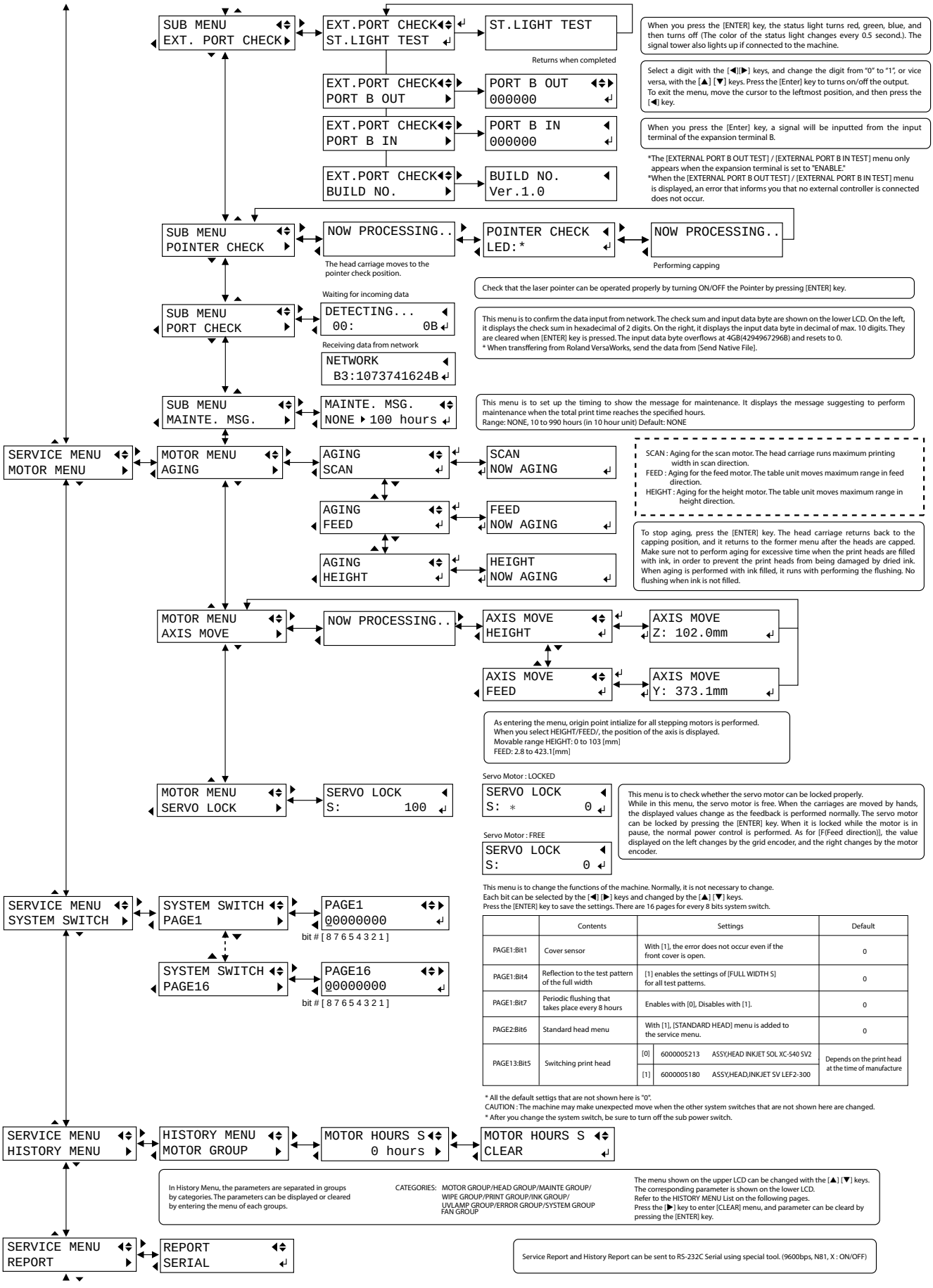

+ POWER ON
[MENU] key
MENU
SERVICE MENU
SERVICE MENU
PRINT MENU
PRINT MENU
HEAD RANK
HEAD 1
HEAD RANK 1
1234567 (1/5)
HEAD RANK
HEAD 4
HEAD RANK 4
1234567 (1/5)
This menu is used for entering the head rank for each print head with 35 digit number and alphabet. The digits can be changed with the [◀] [▶] keys and parameters can be changed with the [▲] [▼] keys. The digit being changed is marked with an under bar. Press the [ENTER] key to save the settings. Warning sound goes off when the calculation for verification, CHECK SUM, is not correct, in order to avoid input error.
PRINT MENU
HEAD ADJUST
HEAD ADJUST
BIAS/VERTICAL
BIAS/VERTICAL
TEST PRINT
PERFORMING
TEST PRINT
HEAD ADJUST
HORIZONTAL
HORIZONTAL
TEST PRINT
PERFORMING
TEST PRINT
HORIZONTAL
DT1, Low
H1 H3 H4
2 3 2
HORIZONTAL
DT3, Low
H1 H3 H4
2 3 2
Cursor can be moved with the [◀] [▶] keys, and value can be selected with the [▲] [▼] keys. The value being selected is marked with an under bar. It returns to the former menu pressing the [◀] key when the cursor is on the head of the left end. H2 is defined as the standard head in this case.
Default: 0
Range: -15 to +15dot
(changeable by 0.5dot)
0.5dot is indicated as 1/2.
HEAD ADJUST
BI-DIR.DEFAULT
BI-DIR.DEFAULT
TEST PRINT
TEST PRINT
1234
PERFORMING
TEST PRINT
PIG/ECO-UV4 ink
BI-DIR.DEFAULT
DT1, Low
H1 H2 H3
2 1 3
H4
2
BI-DIR.DEFAULT
DT3, Low
BI-DIR.DEFAULT
DT1, High
BI-DIR.DEFAULT
DT3, High
Each head can be selected with the [◀] [▶] keys, and value can be selected with the [▲] [▼] keys. Press the [ENTER] key to save the settings.
It returns to the former menu after setting.
The selected setting value is displayed with an underscore (_).
The setting will be canceled when the [◀] key is pressed while the H1 setting is selected. The selected setting value is displayed with an underscore (_).
Default: ** (0) It can be changed with the [▲] [▼] keys.
(Standard value: 15)
Range: 0 to 40dot (Unit: 0.5dot) 0.5 dot is expressed in %.
ECO-UV2 ink
BI-DIR.DEFAULT
DT6, Low
H1 H2 H3
2 1 3
H4
2
BI-DIR.DEFAULT
DT8, Low
BI-DIR.DEFAULT
DT6, High
BI-DIR.DEFAULT
DT8, High
Each head can be selected with the [◀] [▶] keys, and value can be selected with the [▲] [▼] keys. Press the [ENTER] key to save the settings.
It returns to the former menu after setting.
The selected setting value is displayed with an underscore (_).
The setting will be canceled when the [◀] key is pressed while the H1 setting is selected. The selected setting value is displayed with an underscore (_).
Default: ** (0) It can be changed with the [▲] [▼] keys.
(Standard value: 15)
Range: 0 to 40dot (Unit: 0.5dot) 0.5 dot is expressed in %.

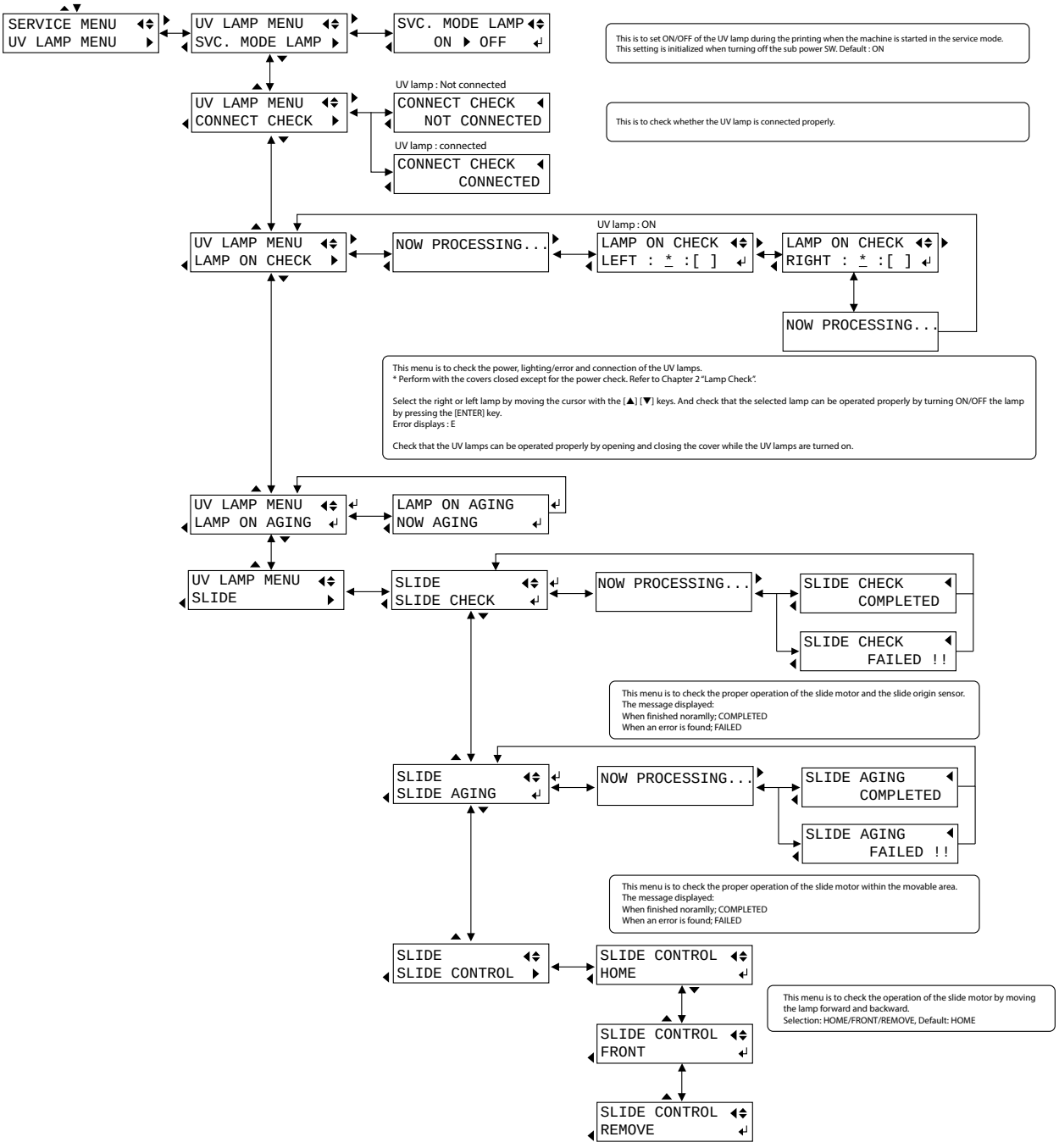

PRINT MENU
LINEAR ENCODER
NOW PROCESSING..
POS: 1361.00mm
Normal (beeps 1 time)
LINEAR ENCODER
SETUP COMPLETED
Normal end
Error (beeps 2 times)
LINEAR ENCODER
SETUP FAILED
An error is found on linear encoder and scale.
LINEAR ENCODER
HEADBOARD FAILED
An error is found on head board.
This menu is for checking the installation and operation of encoder sensor and encoder scale.
Refer to Chapter 2 "Linear Encoder Setup".
PRINT MENU
CALIB DEFAULT
CALIB DEFAULT
TEST PRINT
PERFORMING
TEST PRINT
CALIB DEFAULT
SETTING
SETTING
+0.05% > +0.10%
PRINT MENU
TEST PATTERN
TEST PATTERN
HORIZONTAL
PERFORMING
TEST PRINT
It is for checking the head alignment in horizontal position.
TEST PATTERN
BI-DIR.
PERFORMING
TEST PRINT
TEST PATTERN
FILL
PERFORMING
TEST PRINT
It prints on the entire print range solid in single color by each head.
Print mode is fixed at 720 dps and 8 pass.
TEST PATTERN
BI-DIR. CHECK
PERFORMING
TEST PRINT
TEST PATTERN
SLOPE CHECK
PERFORMING
TEST PRINT
It prints the bidirectional pattern of entire scan range on the front side and back side of the table.
When the table is uneven, the printed test patteren will be different on the right side and left side.
TEST PATTERN
CALIBRATE
PERFORMING
TEST PRINT
It prints a 295 mm line for scan-direction and a 270 mm line for feed-direction.
TEST PATTERN
SQUARE CHECK
PERFORMING
TEST PRINT
PRINT MENU
FLUSHING ADJ.
NOW PROCESSING..
FLUSHING ADJ.
0.00mm>-0.40mm
NOW PROCESSING..
This is for adjusting the flushing position.
As entering the menu, the head carriage moves to the current flushing position.
With the [◀] [▶] keys, move the cap tops and print heads to the position where the cap case guide makes contact with the carriage cap guide, and press the [ENTER] key to save the position. As the [ENTER] key is pressed, the head is automatically capped and it backs out the menu. For backing out the menu without saving the position, press the [MENU] key without pressing the [ENTER] key.
PRINT MENU
MARKER POS ADJ.
NOW PROCESSING..
PERFORMING
TEST PRINT
S:****>+0.1mm
F:****>-0.3mm
NOW PROCESSING..
This is for adjusting the laser pointer position.
As entering the menu, the head carriage moves to above the test pattern after the test print.
When it shows [****], it means that it has never been setup. With the [◀] [▶] keys, move the head carriage to the position where the laser pointer points the centermost square of the test pattern and press the [ENTER] key to save the position.
As the [ENTER] key is pressed, the print head is automatically capped and it backs out the menu.
For backing out the menu without saving the position, press the [MENU] key without pressing the [ENTER] key.
PRINT MENU
PRINT AREA ADJ.
NOW PROCESSING..
S:****>+0.1mm
F:****>-0.3mm
NOW PROCESSING..
As entering the menu, the machine prints a test pattern for print area adjustment. After that, the head carriage moves to the position which has been set previously. If it has never been setup, it shows [****]. With the [▲] [◀] [▶] [▼] keys, move the head carriage and the table to the position where the laser pointer points the center of the square of the test pattern. Press the [ENTER] key to save the position.
As the [ENTER] key is pressed, the print head is automatically capped and it backs out the menu. The head carriage and the table moves just a little bit when you press the [▲] [◀] [▶] [▼] keys.
For backing out the menu without saving the position, press the [MENU] key without pressing the [ENTER] key.
Range: -5.0 (mm) to +5.0 (mm)
Default: 0.0 (mm)


SERVICE MENU
I/S MENU
I/S MENU
I/S CHECK
NOW PROCESSING..
Checking
Normal
I/S CHECK COMPLETED
Error
I/S CHECK ERROR
WIPER
This menu is for checking the motors and sensors of cap (up/down), wipers, and slider.
**Make sure to move the head carriage towards left off the capping unit before performing this check. Otherwise, it may damage the print head, cap or wiper unit.
Error displays CAP: An error is found on the capping motor or capping sensor.
WIPER: An error is found on the wiper motor or wiper sensor.
I/S MENU
PUMP CHECK
PUMP CHECK
PUMP SUCTION
PUMP SUCTION
AB
NOW PROCESSING..
PUMP SUCTION
CIR-PUMP
NOW PROCESSING..
PUMP CHECK
PUMP RELEASE
PUMP RELEASE
AB
NOW PROCESSING..
PUMP RELEASE
CIR-PUMP
NOW PROCESSING..
This is for checking the pump motor.
The rotation for both ink suction and release can be checked. All pump motors rotate for 5 seconds and stop.
I/S MENU
I/S CONTROL
I/S CONTROL
WIPER
WIPER
FRONT
WIPER: Move the wiper towards front and rear.
Option: FRONT/REAR Default: FRONT
**Caution: When moving the head carriage by hand, pay attention to the cap height and wiper position to avoid lashing.
Also, when moving the cap and wiper, pay attention to the carriages, especially to the head carriage.
I/S MENU
WIPER AGING
NOW PROCESSING..
WIPER AGING
COMPLETED
Error (beeps 2 times)
WIPER AGING
FAILED !!
I/S MENU
CARTRIDGE
Remove all cartridges before pressing ENTER
CARTRIDGE
IC CHECK
Set cartridge to SLOT1
IC CHECK
SLOT1 INSERT
Error
IC CHECK
SLOT1 ERROR
Normal
IC CHECK
SLOT1 OK
From SLOT1 to 7 in order
Set cartridge to SLOT7
IC CHECK
SLOT7 INSERT
Error
IC CHECK
SLOT7 ERROR
Normal
IC CHECK
SLOT7 OK
IC CHECK
COMPLETED
All cartridges must be removed before entering IC CHECK menu.
It detects ink cartridge IC, writes and loads information, and checks the communication. First of all, it confirms
if there is the driver for IC detection. The following display indicates that error is found on driver.
IC CHECK
SYSTEM ERROR
Next, IC communication is checked individually by SLOT.
When a cartridge is inserted, it automatically starts to communicate with the cartridge IC and checks it. Display shows [OK], when the communication is done properly.
As cartridge is removed, the next cartridge SLOT number to be inserted is displayed. Starting from SLOT1, it continues to SLOT7 in order. When checking SLOT7 is completed, the following message is displayed.
IC CHECK
COMPLETED
It returns to IC CHECK menu by pressing [ENTER] key.
When communication is failed, it displays as below.
IC CHECK
SLOT1 ERROR
It returns to IC CHECK menu by pressing [ENTER] key.
*Any cartridge can be used for this check as long as it has IC chip on it.
*No information is written on IC chip during this check. (Normally, the count of the cartridge installation is written. However, the count of the installation in this check is not written.)
*Before this IC check, make sure cartridge sensor is working properly.


CARTRIDGE
SLOT 1
SL1 : SERIAL
1402A30C010000A5
Serial No. of the ink cartridge IC is displayed.
SL1 : INK TYPE
EUV K
Ink type of the ink cartridge IC is displayed.
SL1 : CAPACITY
200cc
Ink capacity of the ink cartridge IC is displayed.
SL1 : LOT NO.
40216A
Lot No. of the ink cartridge IC is displayed.
SL1 : CONSUM.
100.000cc
Ink consumption of the ink cartridge is displayed.
SL1 : TIME
0y000d00h00m00s
The used time of the ink cartridge is displayed.
SL1 : INSERT
1 times
The insert count of the ink cartridge is displayed.
SL1 : FLAG
000000000
The flag information of the ink cartridge is displayed.
CARTRIDGE
SLOT 2
CARTRIDGE
SLOT 7
It reads the information written on the IC of each carriage.
Following messages are displayed when errors are found.
No ink cartridge is inserted.
SLOT1
NO CARTRIDGE
An ink cartridge with no IC is inserted, wire breakage or short circuit
SLOT1
NO IC CHIP
System error due to the damage of driver IC placed on INK TANK BOARD
SLOT1
SYSTEM ERROR
Data error
SLOT1
DATA ERROR
SERVICE MENU
SENSOR CHECK
HMCPwFLA
* ***
1234567
***
This menu displays the real-time status of each sensor. It shows " * " when the sensor is ON.
The first page shows the status of each sensor.
Each letter of the alphabet stands for the following.
H: Head origin sensor
M: Maintenance cover sensor
C: Front cover sensor
P: Panel cover sensor
w: Wiper sensor
F: Feed origin sensor
L: Height origin sensor
A: Head gap sensor
The second page shows the status of each cartridge sensor and ink empty sensor. Each color has 2 positions and the left side on the display shows the left-side head.
Blank : Cartridge not inserted, Ink remains
C: Cartridge inserted, Ink remains
E: Cartridge not inserted, Ink empty
*: Cartridge inserted, Ink empty
In short, it is blank when both sensors are OFF, and " * " is displayed when both sensors are ON.
SERVICE MENU
THERMISTOR CHK
THERMISTOR CHK
HEAD:25°C/ 77°F
THERMISTOR CHK
AMB :25°C/ 77°F
This menu is used for checking the thermistor. It displays the temperatures read from the thermistor placed on the center head (HEAD). The temperature on the left is indicated in celsius and so is the right in fahrenheit.
Since the temperature of the device on the head board may rise, [HEAD] shows higher temperature than the room temperature.
Confirm that the temperature is not extremely low, such as 0 celsius, or extremely high, such as 100 celsius.
[AMB] indicates outside air temperature.
SERVICE MENU
SUB MENU
SUB MENU
SERIAL NO.
SERIAL NO.
ZS00000
This menu is for entering the serial No. of the machine in 7 digits. The cursor moves between digits with the [◀] [▶] keys.
The parameter can be changed with the [▲] [▼] keys.
SUB MENU
CHANGE INKTYPE
CHANGE INKTYPE
EUV4 GG▸EUV4 GG
NOW PROCESSING..
BUSY LED flashes
To Setup View
This menu is to change the ink type. Different from the process in the user menu, operations such as Head Wash and Ink Fill are not included.
This menu is used as a correction purpose when a wrong type ink is selected.
When the ink type is changed, ink system is initialized internally. Then, it exits the menu and setup is canceled.
Ink Type
PIGMENT : CMYKLcLm
ECO-UV2 CMYKGIGIWW
ECO-UV4 : CMYKGIGIWW
UNKNOWN : Ink Type not specified
PIG : cm
UV : GG
EUV4 : GG


SUB MENU
FILL INK
FILL INK
A B
EMPTY
DRAIN BOTTLE
Pressing [ENTER] key resets drain count
Fills ink to each print head. A to B shown on the lower LCD are the head groups. The cursor can be moved with the [◀] [▶] keys. Use the [▲] [▼] keys for ON/OFF. By pressing the [ENTER] key, it starts to fill ink for the selected head groups. To exit the menu, press the [◀] key when the cursor is on A.
NOTE: Normally, FILL INK is to be performed on the three groups together. Performing this on individual head group should be for a recovery only when PUMP UP or HEAD WASH is performed individually.
When ink is not filled
SELECT INK TYPE
ECO-UV4 GlGlWW
INSTALL
DRAIN BOTTLE
SET CARTRIDGE
1234567
Goes next, when cartridge is set
FILLING INK...
>>>>>
CHECK
DRAIN BOTTLE
Goes next, when completed
SUB MENU
PUMP UP
PUMP UP
A B
EMPTY
DRAIN BOTTLE
Pressing [ENTER] key resets drain count
REMOVE CARTRIDGE
1234567
Goes next, when cartridge is removed
PUMPING-UP...
Goes next, when completed
Removes ink from each print head. The difference from the user menu is that head group can be selected.
NOTE: When this is performed on individual head group, the normal maintenance operations cannot be performed. Normally, PUMP UP is to be performed on the both groups together. When it is necessary to perform it individually, fill the same type of ink for recovery with FILL INK menu immediately.
SUB MENU
HEAD WASH
HEAD WASH
A B
EMPTY
DRAIN BOTTLE
Pressing [ENTER] key resets drain count
REMOVE CARTRIDGE
1234567
Goes next, when cartridge is removed
SET CL-LIQUID
1234567
Goes next,
when cleaning cartridge is set
WASHING HEAD...
REMOVE CL-LIQUID
1234567
Goes next,
when cleaning cartridge is removed
WASHING HEAD...
Goes next, when completed
Washes print heads. A to B shown on the lower LCD are the head groups. Cursor can be moved with the [◀] [▶] keys. Use the [▲] [▼] keys for ON/OFF. By By pressing the [ENTER] key, head washing is started for the selected head group. To exit the menu, press [left] key when the cursor is on A.
NOTE: When this is performed on individual head group, the normal maintenance operations cannot be performed. Regularly, HEAD WASH is performed on the two groups together. When needing the head wash individually, fill it with the same type of ink from FILL INK menu immediately.
SUB MENU
PERIODIC CL.
PERIODIC CL.
LIGHT ▸ LIGHT
This menu is to select the type of periodic cleaning which is automatically performed during printing.
Options: WIPE/LIGHT/NORMAL/MEDIUM Default: NORMAL
WIPE: Wiping and flushing only
LIGHT: Wiping and light evacuation (lighter than regular cleaning) only
NORMAL/MEDIUM: The regular cleanings that can be executed from the control panel
Cleaning period can be set up in PERIODIC CL. menu of the user menu.
SUB MENU
FAN CHECK
FAN CHECK
MIST FAN
FAN CHECK
VACUUM FAN
This menu is to check fans. Select a fan type with the [▲] [▼] keys.
Press [ENTER] key for ON/OFF of fans. Fan turns off automatically when exiting this menu.
SUB MENU
CLOCK
CLOCK
DATE
DATE
11/09/10
[Year/Month/Day]
Display
DATE
11/09/10
[Year/Month/Day]
Edit
CLOCK
TIME
TIME
01:01:59
Display
TIME
01:01:59
Edit
TIME
01:01:59 B
TIME
01:01:59 B
It shows [B], when battery is dead.
This menu is to display and edit the date and time. When it detects the battery exhaustion, [B] is indicated on the time display. In this case, battery needs to be replaced. However, [B] does not disappear automatically when the battery is replaced. [B] is deleted, when the time is newly set up with the [ENTER] key on the time edit menu.
When the real time clock is not active due to battery exhaustion, the maintenance operation may be performed improperly, such that it performs cleaning every time the main power is turned on. The time set here is used for periodic maintenance operations and the time record of Event Log function. Be aware that it affects the maintenance operations if the time is changed.
When this setting is changed, it is recorded on Event Log. The time before change is used for the log time, and the new time is recorded as an information.
SUB MENU
DIP SW CHECK
DIP SW CHECK
100100
bit # [1 2 3 4 5 6]
This menu is to check the dip switch. It displays the real-time status of the No.1 to 6 from the left. [0] is OFF and [1] is ON.
SUB MENU
KEY CHECK
KEY CHECK
NONE
This menu is to check the operation of panel keys. On this menu, it shows [NONE] on the lower LCD when any key has not been pressed. It shows the key name when some key is pressed. And it shows a message of [KEY ERROR] when two keys or more are pressed at the same time, and it is considered that no button is pressed. You can exit this menu with the [◀] key. Therefore, the [◀] key needs to be the last button to be pressed in order to check all keys. As long as the [◀] key is pressed at the last, the order of pressing other keys can be random. When it is left without pressing any key for 10 seconds, or pressing the [◀] key, it exits this menu. At this time, the names of the keys that never been pressed are displayed with a buzzer. This means that if a buzzer does not go off when exiting, all keys are checked properly. The power cannot be turned off with the sub power key while performing this menu.
SUB MENU
LCD/LED/BUZ CHK
Abbreviated
Returns when completed
This menu is to check LCD, LED and buzzer. When this menu is selected, it sequentially performs the functions of LCD, LED and buzzer. The functions are the followings, ON/OFF of LCD contrast, LCD back light, ON/OFF of buzzer, display and move of cursor on LCD, and display of all caracters available on LCD. Confirm that all functions operate properly, visually and by the sound.


SUB MENU
EXT. PORT CHECK
EXT.PORT CHECK
ST.LIGHT TEST
ST.LIGHT TEST
When you press the [ENTER] key, the status light turns red, green, blue, and then turns off (The color of the status light changes every 0.5 second.). The signal tower also lights up if connected to the machine.
Returns when completed
EXT.PORT CHECK
PORT B OUT
PORT B OUT
000000
Select a digit with the [◀][▶] keys, and change the digit from "0" to "1", or vice versa, with the [▲] [▼] keys. Press the [Enter] key to turns on/off the output. To exit the menu, move the cursor to the leftmost position, and then press the [◀] key.
EXT.PORT CHECK
PORT B IN
PORT B IN
000000
When you press the [Enter] key, a signal will be inputted from the input terminal of the expansion terminal B.
EXT.PORT CHECK
BUILD NO.
BUILD NO.
Ver.1.0
*The [EXTERNAL PORT B OUT TEST] / [EXTERNAL PORT B IN TEST] menu only appears when the expansion terminal is set to "ENABLE."
*When the [EXTERNAL PORT B OUT TEST] / [EXTERNAL PORT B IN TEST] menu is displayed, an error that informs you that no external controller is connected does not occur.
SUB MENU
POINTER CHECK
NOW PROCESSING..
The head carriage moves to the pointer check position.
POINTER CHECK
LED:*
NOW PROCESSING..
Performing capping
Waiting for incoming data
Check that the laser pointer can be operated properly by turning ON/OFF the Pointer by pressing [ENTER] key.
SUB MENU
PORT CHECK
DETECTING...
00: 0B
This menu is to confirm the data input from network. The check sum and input data byte are shown on the lower LCD. On the left, it displays the check sum in hexadecimal of 2 digits. On the right, it displays the input data byte in decimal of max. 10 digits. They are cleared when [ENTER] key is pressed. The input data byte overflows at 4GB(4294967296B) and resets to 0.
* When transffering from Roland VersaWorks, send the data from [Send Native File].
Receiving data from network
NETWORK
B3:1073741624B
SUB MENU
MAINTE. MSG.
MAINTE. MSG.
NONE ▸ 100 hours
This menu is to set up the timing to show the message for maintenance. It displays the message suggesting to perform maintenance when the total print time reaches the specified hours.
Range: NONE, 10 to 990 hours (in 10 hour unit) Default: NONE
SERVICE MENU
MOTOR MENU
MOTOR MENU
AGING
AGING
SCAN
SCAN
NOW AGING
SCAN : Aging for the scan motor. The head carriage runs maximum printing width in scan direction.
FEED : Aging for the feed motor. The table unit moves maximum range in feed direction.
HEIGHT : Aging for the height motor. The table unit moves maximum range in height direction.
AGING
FEED
FEED
NOW AGING
AGING
HEIGHT
HEIGHT
NOW AGING
To stop aging, press the [ENTER] key. The head carriage returns back to the capping position, and it returns to the former menu after the heads are capped. Make sure not to perform aging for excessive time when the print heads are filled with ink, in order to prevent the print heads from being damaged by dried ink. When aging is performed with ink filled, it runs with performing the flushing. No flushing when ink is not filled.
MOTOR MENU
AXIS MOVE
NOW PROCESSING..
AXIS MOVE
HEIGHT
AXIS MOVE
Z: 102.0mm
AXIS MOVE
FEED
AXIS MOVE
Y: 373.1mm
As entering the menu, origin point intialize for all stepping motors is performed.
When you select HEIGHT/FEED/, the position of the axis is displayed.
Movable range HEIGHT: 0 to 103 [mm]
FEED: 2.8 to 423.1[mm]
Servo Motor : LOCKED
MOTOR MENU
SERVO LOCK
SERVO LOCK
S: 100
SERVO LOCK
S: * 0
This menu is to check whether the servo motor can be locked properly.
While in this menu, the servo motor is free. When the carriages are moved by hands, the displayed values change as the feedback is performed normally. The servo motor can be locked by pressing the [ENTER] key. When it is locked while the motor is in pause, the normal power control is performed. As for [F(Feed direction)], the value displayed on the left changes by the grid encoder, and the right changes by the motor encoder.
Servo Motor : FREE
SERVO LOCK
S: 0
SERVICE MENU
SYSTEM SWITCH
SYSTEM SWITCH
PAGE1
PAGE1
00000000
bit # [8 7 6 5 4 3 2 1]
SYSTEM SWITCH
PAGE16
PAGE16
00000000
bit # [8 7 6 5 4 3 2 1]
This menu is to change the functions of the machine. Normally, it is not necessary to change.
Each bit can be selected by the [◀] [▶] keys and changed by the [▲] [▼] keys.
Press the [ENTER] key to save the settings. There are 16 pages for every 8 bits system switch.
Contents
Settings
Default
PAGE1:Bit1
Cover sensor
With [1], the error does not occur even if the front cover is open.
0
PAGE1:Bit4
Reflection to the test pattern of the full width
[1] enables the settings of [FULL WIDTH S] for all test patterns.
0
PAGE1:Bit7
Periodic flushing that takes place every 8 hours
Enables with [0], Disables with [1].
0
PAGE2:Bit6
Standard head menu
With [1], [STANDARD HEAD] menu is added to the service menu.
0
PAGE13:Bit5
Switching print head
[0] 6000005213 ASSY,HEAD INKJET SOL XC-540 SV2
[1] 6000005180 ASSY,HEAD,INKJET SV LEF2-300
Depends on the print head at the time of manufacture
* All the default settigs that are not shown here is "0".
CAUTION : The machine may make unexpected move when the other system switches that are not shown here are changed.
* After you change the system switch, be sure to turn off the sub power switch.
SERVICE MENU
HISTORY MENU
HISTORY MENU
MOTOR GROUP
MOTOR HOURS S
0 hours
MOTOR HOURS S
CLEAR
In History Menu, the parameters are separated in groups by categories. The parameters can be displayed or cleared by entering the menu of each groups.
CATEGORIES: MOTOR GROUP/HEAD GROUP/MAINTE GROUP/ WIPE GROUP/PRINT GROUP/INK GROUP/ UVLAMP GROUP/ERROR GROUP/SYSTEM GROUP FAN GROUP
The menu shown on the upper LCD can be changed with the [▲] [▼] keys. The corresponding parameter is shown on the lower LCD. Refer to the HISTORY MENU List on the following pages. Press the [▶] key to enter [CLEAR] menu, and parameter can be cleard by pressing the [ENTER] key.
SERVICE MENU
REPORT
REPORT
SERIAL
Service Report and History Report can be sent to RS-232C Serial using special tool. (9600bps, N81, X : ON/OFF)


SERVICE MENU
UV LAMP MENU
UV LAMP MENU
SVC. MODE LAMP
SVC. MODE LAMP
ON ▶ OFF
This is to set ON/OFF of the UV lamp during the printing when the machine is started in the service mode.
This setting is initialized when turning off the sub power SW. Default : ON
UV LAMP MENU
CONNECT CHECK
UV lamp : Not connected
CONNECT CHECK
NOT CONNECTED
UV lamp : connected
CONNECT CHECK
CONNECTED
This is to check whether the UV lamp is connected properly.
UV LAMP MENU
LAMP ON CHECK
NOW PROCESSING...
UV lamp : ON
LAMP ON CHECK
LEFT : * :[ ]
LAMP ON CHECK
RIGHT : * :[ ]
NOW PROCESSING...
This menu is to check the power, lighting/error and connection of the UV lamps.
* Perform with the covers closed except for the power check. Refer to Chapter 2 "Lamp Check".
Select the right or left lamp by moving the cursor with the [▲] [▼] keys. And check that the selected lamp can be operated properly by turning ON/OFF the lamp by pressing the [ENTER] key.
Error displays : E
Check that the UV lamps can be operated properly by opening and closing the cover while the UV lamps are turned on.
UV LAMP MENU
LAMP ON AGING
LAMP ON AGING
NOW AGING
UV LAMP MENU
SLIDE
SLIDE
SLIDE CHECK
NOW PROCESSING...
SLIDE CHECK
COMPLETED
SLIDE CHECK
FAILED !!
This menu is to check the proper operation of the slide motor and the slide origin sensor.
The message displayed:
When finished noramlly; COMPLETED
When an error is found; FAILED
SLIDE
SLIDE AGING
NOW PROCESSING...
SLIDE AGING
COMPLETED
SLIDE AGING
FAILED !!
This menu is to check the proper operation of the slide motor within the movable area.
The message displayed:
When finished noramlly; COMPLETED
When an error is found; FAILED
SLIDE
SLIDE CONTROL
SLIDE CONTROL
HOME
SLIDE CONTROL
FRONT
SLIDE CONTROL
REMOVE
This menu is to check the operation of the slide motor by moving the lamp forward and backward.
Selection: HOME/FRONT/REMOVE, Default: HOME

History Menu

Motor Group

Item	Contents	Unit	Reference
MOTOR HOURS S	Total time the scan motor rotated	hour	Life of the brush
MOTOR HOURS F	Total time the feed motor rotated	hour	Life of the belt
MOTOR HOURS Z	Total time the Z motor rotated	hour	Life of the belt
MOTOR HOURS L	Total time the lamp slide motor rotated	hour	Durability of the motor
PUMP TIMES A	Number of times the pump motor A rotated	times	Life of the pump
PUMP TIMES B	Number of times the pump motor B rotated	times	Life of the pump
PUMP TIMES CIR	Number of times the circuration pump motor rotated	times	Life of the pump
CLEAR ALL	Clear all values under MOTOR GROUP		

Head Group

Item	Contents	Unit	Reference
SHOT COUNT 1	Number of times the piezo drove per nozzle (H1 left)	Shots/1000	Life: 6 billion shots/nozzle Ink from SLOT1
SHOT COUNT 2	Number of times the piezo drove per nozzle (H1 right)	Shots/1000	Life: 6 billion shots/nozzle Ink from SLOT2
SHOT COUNT 3	Number of times the piezo drove per nozzle (H2 left)	Shots/1000	Life: 6 billion shots/nozzle Ink from SLOT3
SHOT COUNT 4	Number of times the piezo drove per nozzle (H2 right)	Shots/1000	Life: 6 billion shots/nozzle Ink from SLOT4
SHOT COUNT 5	Number of times the piezo drove per nozzle (H3 left)	Shots/1000	Life: 6 billion shots/nozzle Ink from SLOT5
SHOT COUNT 6	Number of times the piezo drove per nozzle (H3 right)	Shots/1000	Life: 6 billion shots/nozzle Ink from SLOT6
SHOT COUNT 7	Number of times the piezo drove per nozzle (H4 left)	Shots/1000	Life: 6 billion shots/nozzle Ink from SLOT7
SHOT COUNT 8	Number of times the piezo drove per nozzle (H4 right)	Shots/1000	Life: 6 billion shots/nozzle Ink from SLOT7
WIPE H1	Number of times wiping was performed (H1)	times	
WIPE H2	Number of times wiping was performed (H2)	times	
WIPE H3	Number of times wiping was performed (H3)	times	
WIPE H4	Number of times wiping was performed (H4)	times	
AUTO CL.H1	Number of times automatic cleaning was performed (H1)	times	
AUTO CL.H2	Number of times automatic cleaning was performed (H2)	times	
AUTO CL.H3	Number of times automatic cleaning was performed (H3)	times	
AUTO CL.H4	Number of times automatic cleaning was performed (H4)	times	
NORMAL CL. H1	Number of times normal cleaning was performed (H1)	times	
NORMAL CL. H2	Number of times normal cleaning was performed (H2)	times	
NORMAL CL. H3	Number of times normal cleaning was performed (H3)	times	
NORMAL CL. H4	Number of times normal cleaning was performed (H4)	times	
MEDIUM CL. H1	Number of times medium cleaning was performed (H1)	times	
MEDIUM CL. H2	Number of times medium cleaning was performed (H2)	times	
MEDIUM CL. H3	Number of times medium cleaning was performed (H3)	times	
MEDIUM CL. H4	Number of times medium cleaning was performed (H4)	times	
POWERFUL CL.H1	Number of times powerful cleaning was performed (H1)	times	
POWERFUL CL.H2	Number of times powerful cleaning was performed(H2)	times	
POWERFUL CL.H3	Number of times powerful cleaning was performed (H3)	times	
POWERFUL CL.H4	Number of times powerful cleaning was performed (H4)	times	
INK RENEW H1	Number of times ink was renewed (H1)	times	
INK RENEW H2	Number of times ink was renewed (H2)	times	
INK RENEW H3	Number of times ink was renewed (H3)	times	
INK RENEW H4	Number of times ink was renewed (H4)	times	
CLEAR H4	Clear all values of H4		
CLEAR H3	Clear all values of H3		
CLEAR H2	Clear all values of H2		
CLEAR H1	Clear all values of H1		
CLEAR ALL	Clear all values of all print heads		

Maintenance Group

Item	Contents	Unit	Reference
MAINTE. COUNT	Number of times head maintenance was performed	times	
TOTAL TIME	Elapsed time from the last head maintenance	hour	This value is cleared automatically after carrying out the head maintenance.
PRINTING TIME	Printing time from the last head maintenance	hour	This value is cleared automatically after carrying out the head maintenance.
CLEAR ALL	Clear all values under MAINTENANCE GROUP		

Wipe Group

Item	Contents	Unit	Reference
WIPING COUNT	Number of times wiping was performed	times	This value is cleared automatically after replacing.
WIPE REPLACE	Number of times the wiper was replaced	times	
CLEAR ALL	Clear all values under WIPE GROUP		

Print Group

Item	Contents	Unit	Reference
PRINTING TIME	Total time of printing performed	hour	Test print time is excluded.
PRINT PAGES	Number of pages printed	pages	
CLEAR ALL	Clear all values under PRINT GROUP		

Ink Group

Item	Contents	Unit	Reference
CARTRIDGE 1	Number of times ink cartridge 1 was changed	times	
CARTRIDGE 2	Number of times ink cartridge 2 was changed	times	
CARTRIDGE 3	Number of times ink cartridge 3 was changed	times	
CARTRIDGE 4	Number of times ink cartridge 4 was changed	times	
CARTRIDGE 5	Number of times ink cartridge 5 was changed	times	
CARTRIDGE 6	Number of times ink cartridge 6 was changed	times	
CARTRIDGE 7	Number of times ink cartridge 7 was changed	times	
CHANGE INK	Number of times ink was changed	times	
INK DISCHARGE 1	Number of times ink was circulated and discharged (small amount of dischage)	times	
INK DISCHARGE 2	Number of times ink was circulated and discharged (medium amount of dischage)	times	
INK DISCHARGE 3	Number of times ink was circulated and discharged (large amount of dischage)	times	
CLEAR ALL	Clear all values under INK GROUP		

Error Group

Item	Contents	Unit	Reference
SERVICE CALL	Number of times SERVICE CALL occurred	times	
S-CALL HISTORY	SERVICE CALL No. of the last five SERVICE CALLs	No.	
MOTOR ERROR S	Number of times the scan motor error occurred	times	
LOW TEMP.ERR.	Number of times the low temperature error occurred	times	
HIGH TEMP.ERR.	Number of times the high temperature error occurred	times	
EMERG. CAPPING	Number of times the emergency capping error occurred	times	Number of times of forced capping for head dry prevention that works when cap is left open for three minutes or more due to cover open or other reasons
START UNCAPPED	Number of times the machine started uncapped	times	When cap is left open, it detects the error when machine is started.
CLEAR ALL	Clear all values under ERROR GROUP		

System Group

Item	Contents	Unit	Reference
POWER ON COUNT	Number of times the sub power SW was turned on	times	
POWER ON TIME	Total time the sub power was on	hour	Sleep time is excluded.
SLEEP TIME	Total time the machine was in the sleep mode	hour	
CLEAR ALL	Clear all value under SYSTEM GROUP		

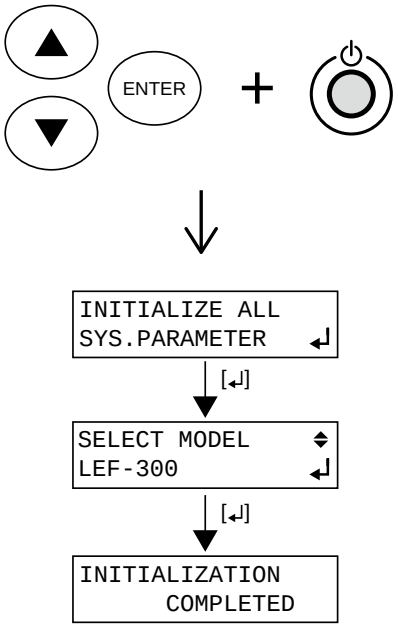
UV Lamp Group

Item	Contents	Unit	Reference
UV LAMP ON COUNT RIGHT	Number of times the UV lamp on the right was turned on	times	
UV LAMP ON TIME RIGHT	Total time the UV lamp on the right was on	hour	
UV LAMP ON COUNT LEFT	Number of times the UV lamp on the left was turned on	times	
UV LAMP ON TIME LEFT	Total time the UV lamp on the left was on	hour	
CLEAR ALL	Clear all value under UV LAMP GROUP		

Fan Group

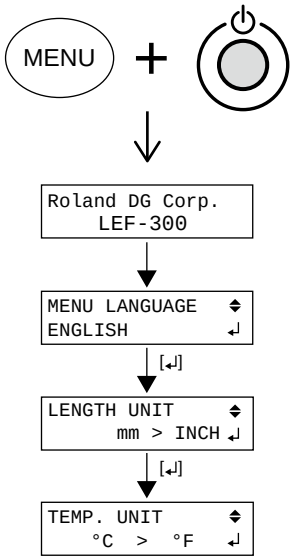
Item	Contents	Unit	Reference
MISTFAN F TIME	Total time the front mist fan rotated	hour	
FILTER REPLACE	Number of times the mist fan filter was replaced	times	
CLEAR ALL	Clear all values under MIST FAN GROUP		

System Parameter Initialize

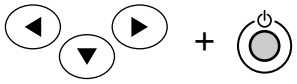
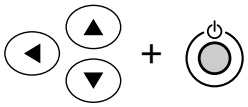
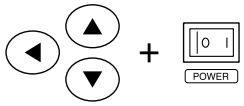
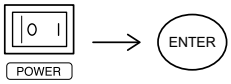
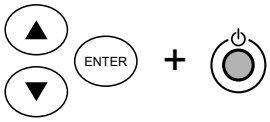
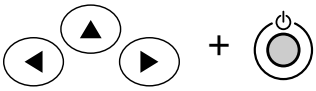
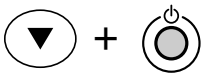


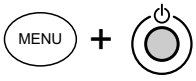
[All parameters will be initialized. Turn on the sub power SW while pressing the [▲] [▼] [ENTER] keys to start the machine in system parameter initialize mode.
Select the model by pressing the [▲] [▼] keys.
Press the [ENTER] key to initialize the system parameter or press the sub power SW for more than 1 second to cancel it.
The machine turns off automatically when the initialization is completed. All the parameters are reset to the default.
It is necessary to initialize the limit position after this initialization.
[SERVICE CALL 0101] occurs without initializing the limit position.

Language / Unit Selection



Key Combinations

Function for Service	Combination Key Selection	Comments
Service mode		Press the [MENU] [▶] keys to enter the service menu.
Firmware upgrade mode		[UPDATE FIRMWARE?] will be displayed. Press the [ENTER] key to upgrade firmware.
Firmware installation (when replacing the main board)		Use this key combination to install firmware after replacing the main board.
		In case of a brand-new main board which firmware is not installed on, [SUM-ERROR] is displayed when the main power SW is turned on. Press the [ENTER] key so that the machine will become ready to load firmware.
System parameter initialize		All parameters will be initialized. Press the [ENTER] key to start initialize.
Limit position/cut down position initialize		Press the [ENTER] key to initialize limit position. Then set up cut down position.
Service report		Service report will be printed. It is the same as the service report in the service menu.

Function for Service	Combination Key Selection	Comments
Language/unit selection		Press the [▲] [▼] keys to select language/ unit.

Firmware Upgrade

Information

Necessary tools

Software
Peck
Latest firmware file

Referential time for work

Contents of work	Time
Firmware upgrade	5 min.

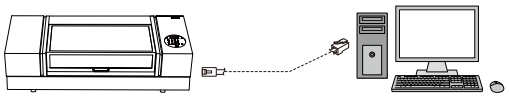
Procedure

CAUTION

It is necessary to prepare the following to upgrade/ install the firmware.

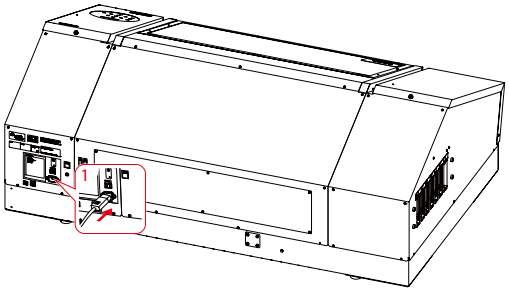
- Firmware
- WindowsPC (A network port is required.)
- Peck.exe
- Network cable

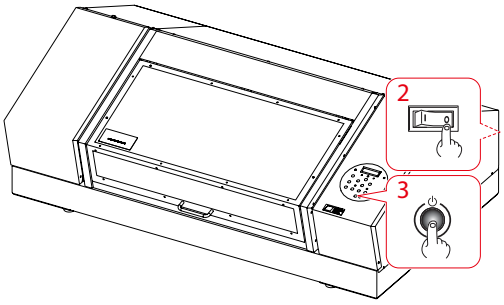
1. **Connect the machine to a PC by using a USB cable.**



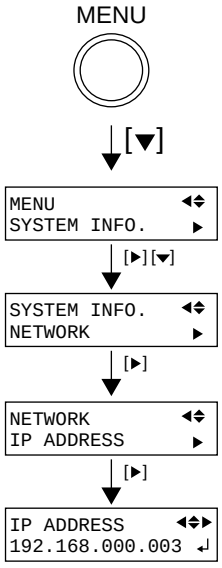
2. **Plug the power code. Turn on the main power SW, and then turn on the sub power SW.**

1. Power code
2. Main power SW
3. Sub power SW

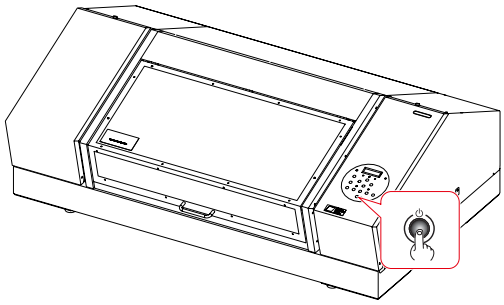




3. **Select [MENU] > [SYSTEM INFO.] > [NETWORK] > [IP ADDRESS] and check the IP address of the machine.**

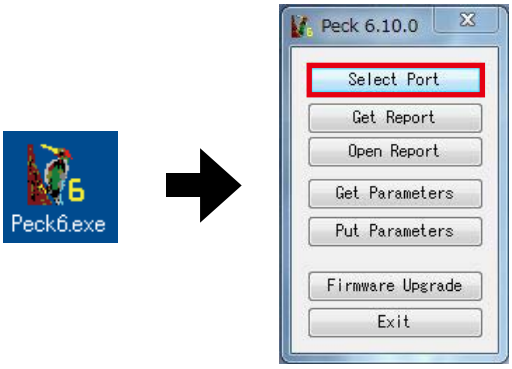


4. Turn off the sub power SW.

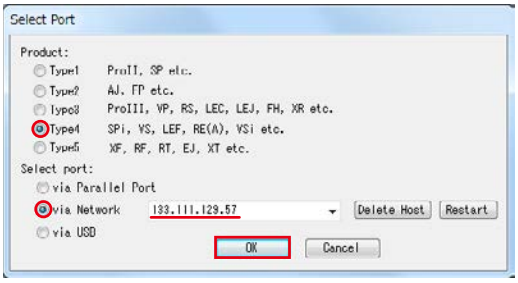


5. Start Peck.

6. The [Peck] dialog box opens. Click the [Select Port] button.

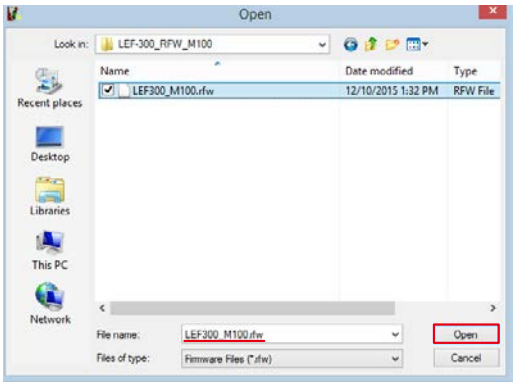


7. Select [Type4] under [Product]. Select [via Network] under [Select port]. Input the IP address of the machine. Click [OK].

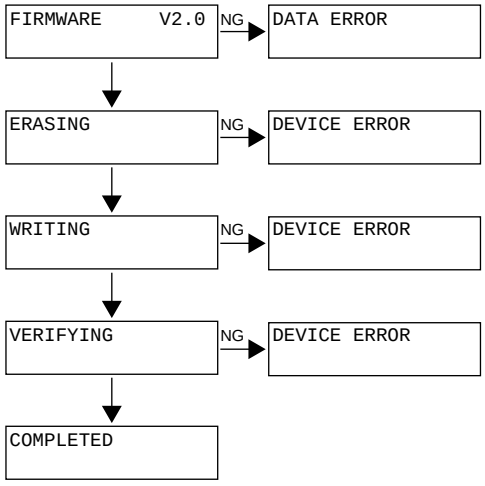


8. The [Peck] dialog box reappears. Click the [Firmware Upgrade] button.

9. The [Open] dialog box appears. Select the firmware file. Click [Open] to send the firmware to the machine.



10. The machine goes into the firmware upgrade mode automatically. The firmware upgrade is complete the [COMPLETED] message is displayed. The sub power turns off automatically.



11. (End of procedure)

Firmware Installation

Information

Necessary tools

Software
Peck
Latest firmware file

Referential time for work

Contents of work	Time
Firmware installation	10 min.

Procedure

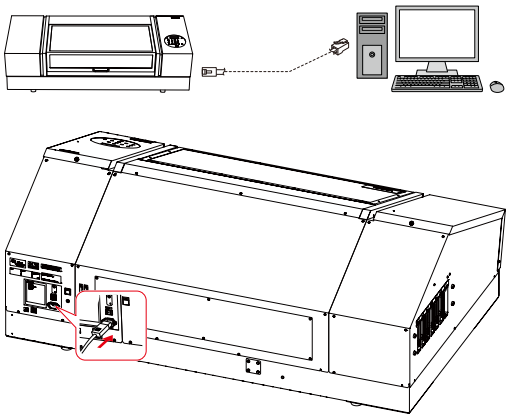
CAUTION

It is necessary to prepare the following to upgrade/ install the firmware.

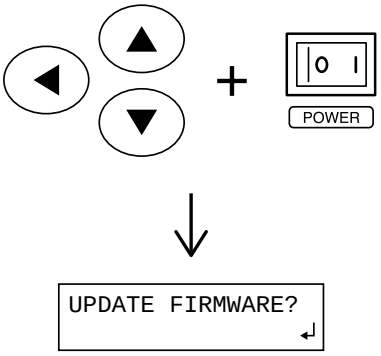
- Firmware
- WindowsPC (A network port is required.)
- Peck.exe
- Network cable

This is required when a new main board without the firmware is installed.

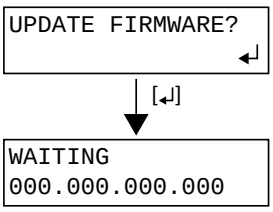
1. **Connect the machine to a PC by using a USB cable.**



2. **Turn on the main power SW while pressing [◀] [▲] [▼] keys.**



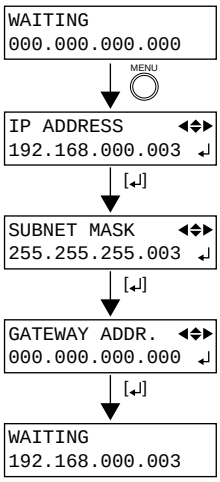
3. **Press the [ENTER] key. The machine becomes ready to receive the firmware.**



4. Press the [MENU] key, and set [IP ADDRESS] > [SUBNET MASK] > [GATEWAY ADDR.]. Press the [◀] [▶] keys for cursor movement and the [▲] [▼] keys for selecting value. After setting an address, press the [ENTER] key to go to next address setting. When [GATEWAY ADDR.] is set, press the [ENTER] key so that the machines becomes ready to receive the firmware.

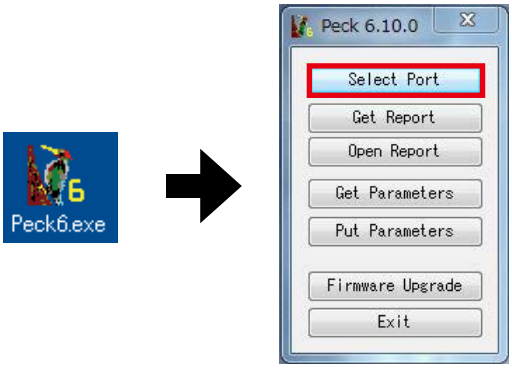
CAUTION

The setting made here is only temporary for the firmware installation and it will not be saved.

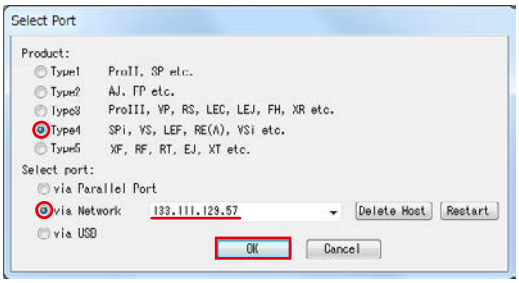


5. Start Peck.

6. The [Peck] screen appears. Clic [Select Port].

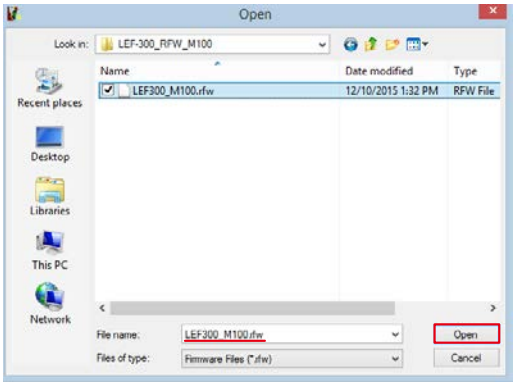


7. Select [Type4] under [Product]. Select [via Network] under [Select port]. Input the IP address of the machine. Click [OK].

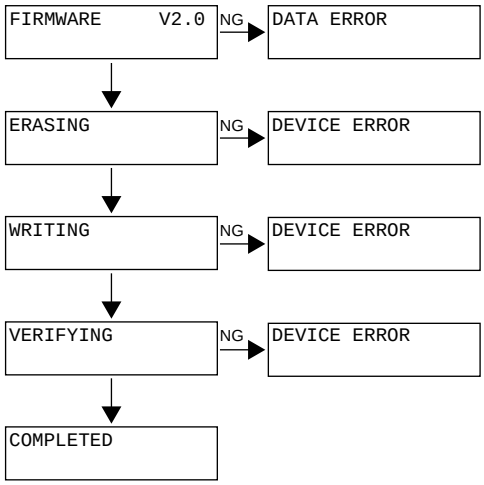


8. The [Peck] dialog box reappears. Click [Firmware Upgrade].

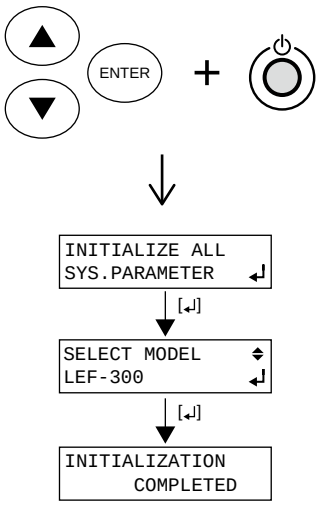
9. The [Open] dialog box appeard. Select the firmware file. Click [Open] to send the firmware to the machine.



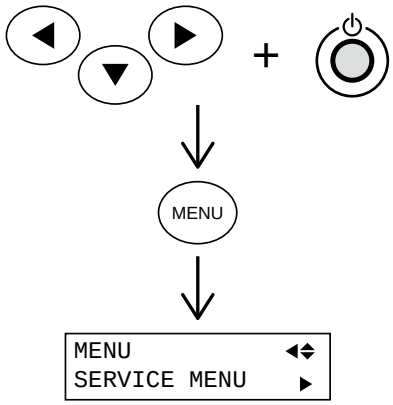
10. It starts loading the firmware. The firmware installation is complete when the [COMPLETE] message is displayed. Turn off the sub power.



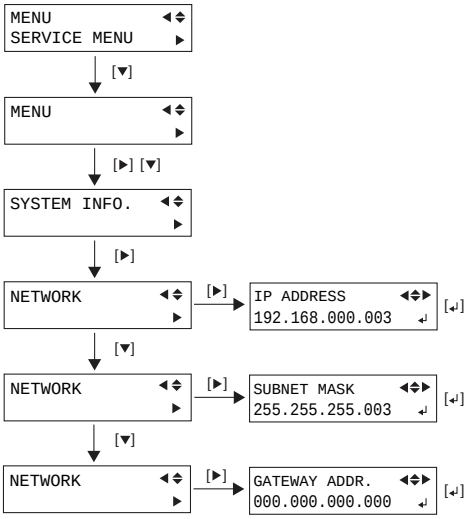
11. Turn on the sub power SW while pressing the [▲] [▼] [ENTER] keys to enter [INITIALIZE ALL SYS. PARAMETER] menu. Press the [ENTER] key to start initialization. The sub power turns off automatically when it is completed.



12. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.

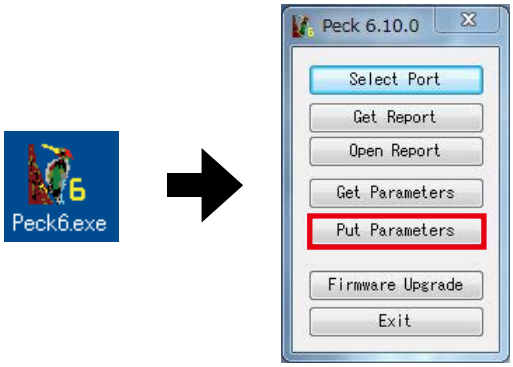


13. Perform network settings.

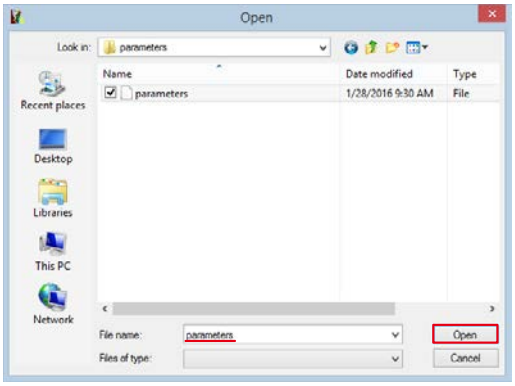


14. Start Peck.

15. The [Peck] dialog box appears. Click the [Put Parameters] button.



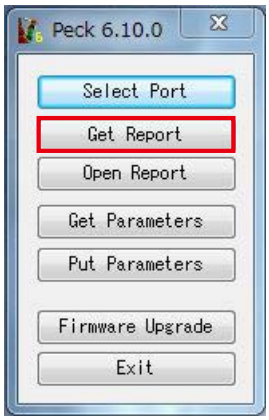
16. The [Open] dialog box appears. Select the system parameter file that was saved before the main board replacement. Click [Open] to send the system parameter to the machine.

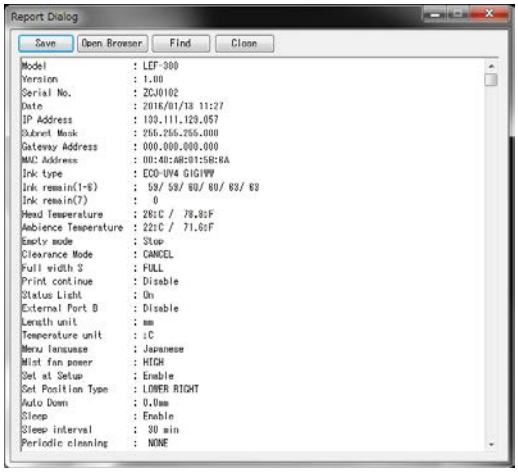


17. Click the [Get Report] button to import the system report file. Confirm that the system parameter is reloaded properly.

NOTE

The addresses set at step 13 are replaced with the addresses saved in the system parameter when [Put Parameter] is performed. Reset the addresses if necessary.




Report Dialog
Save
Open Browser
Find
Close
Model : LEF-300
Version : 1.00
Serial No. : ZCJ0102
Date : 2016/01/18 11:27
IP Address : 133.111.123.057
Subnet Mask : 255.255.255.000
Gateway Address : 000.000.000.000
MAC Address : 00:40:AR:01:5B:KA
Ink type : ECO-UV4 GIGIVW
Ink remain(1-6) : 59/ 59/ 60/ 60/ 63/ 63
Ink remain(7) : 0
Head Temperature : 28:C / 78.8:F
Ambience Temperature : 22:C / 71.6:F
Empty mode : Stop
Clearance Mode : CANCEL
Full width S : FULL
Print continue : Disable
Status Light : On
External Port B : Disable
Length unit : mm
Temperature unit : :C
Menu language : Japanese
Mist fan power : HIGH
Set at Setup : Enable
Set Position Type : LOWER RIGHT
Auto Down : 0.0mm
Sleep : Enable
Sleep interval : 30 min
Periodic cleaning : NONE

18. **(End of procedure)**

Print Head Alignment

Information

Necessary tools

General tools
Media
1.5 mm hexagonal wrench
No.2 Phillips screwdriver

Special tools	
ST-056	TORQUE DRIVER N6
1000005829	TOOL,VINYL YE UV RESISTANT ST-113
1000005463	TOOL,BIT PHILLIPS NO.1 L150MM ST-107

Workflow

1. Print head alignment

Referential time for work

Contents of work	Time
Print head alignment	40 min.

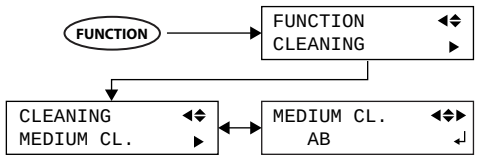
Procedure

CAUTION

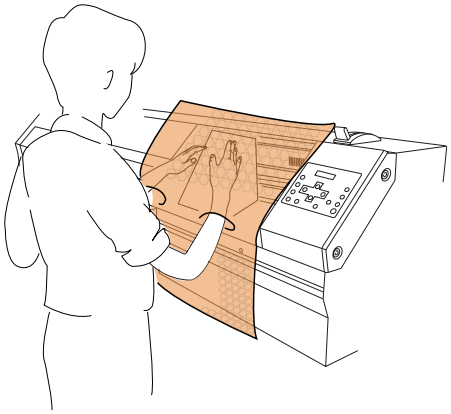
- Print head alignment is necessary to obtain the good printing quality. Be sure to operate the print head alignment when the print head is replaced. If the print heads are not aligned, printing problems such as banding, fine lines, and gap between bands could occur.
- Recommended media for this adjustment is PET-G.

CAUTION

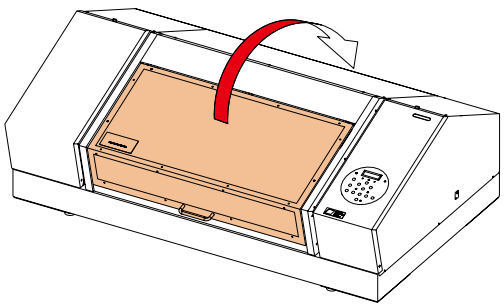
- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



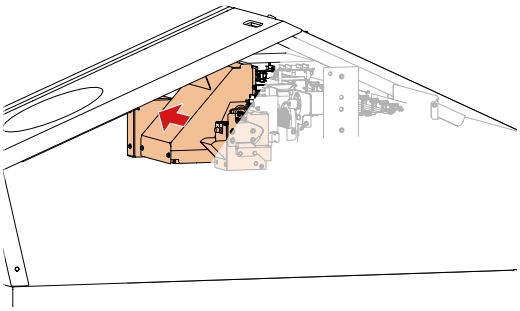
- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



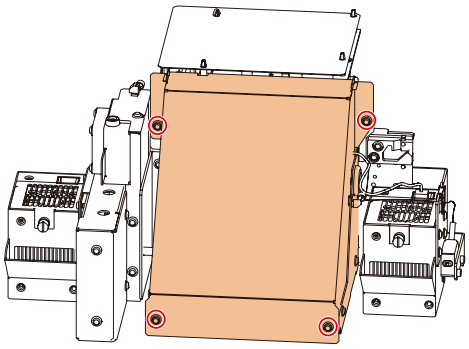
1. Open the cover.



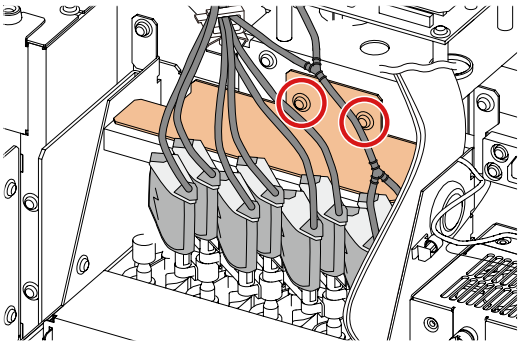
2. Unlock the head carriage, and move it slowly leftwards by hand.



3. Remove four screws that secure the carriage cover.



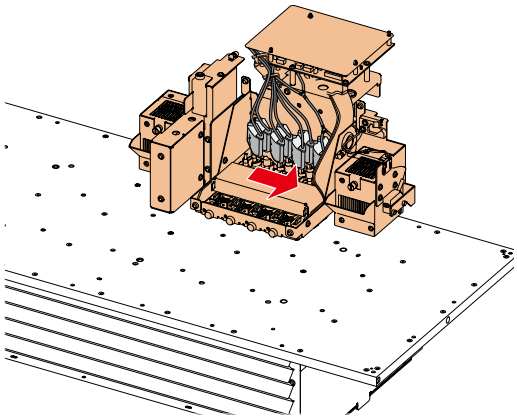
4. Remove two screws that secure the damper plate.



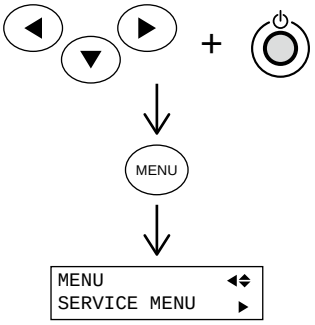
5. Move the head carriage to the lock position.

CAUTION

Do not lock the head carriage.



6. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.

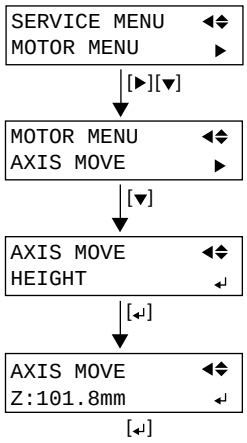


7. Setup PET-G on the machine.

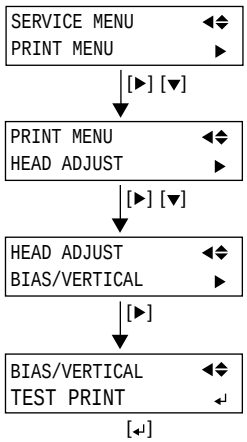
NOTE

Press the [PAUSE/VACUUM] button to start the vacuum fan.

8. Select [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and set the height to [101.8 mm].



9. Select [SERVICE MENU] > [PRINT MENU] > [HEAD ADJUST] > [BIAS/VERTICAL] > [TEST PRINT], and press the [ENTER] key.



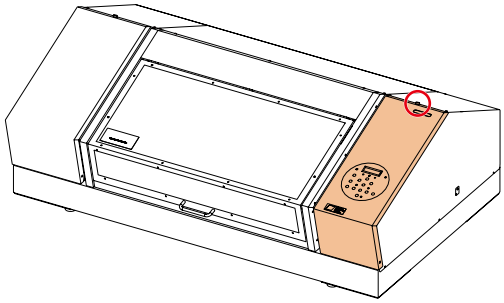
10. **A test pattern is printed. The pattern of the test print changes depending on ink type.**

NOTE

Press the [▲] key to move the table forward so that you can see the test pattern well. Press the [▼] key to move the table back to the original position.

Bias Adjustment

11. **Remove the screw that secures the cover.**

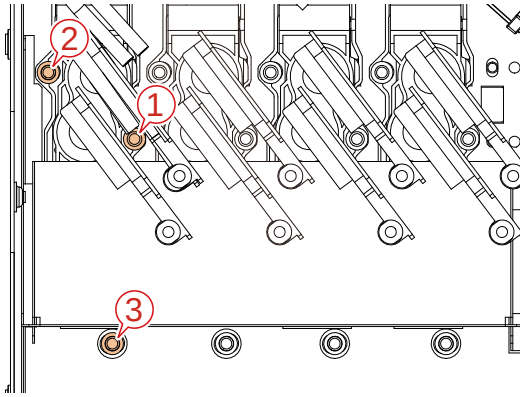


12. **Loosen three screws that secure the print head in the order as shown below.**

CAUTION

Loosen the screws that secure the print head approximately 1/2 turn. If the screws are too loose, it may affect the result of this alignment.

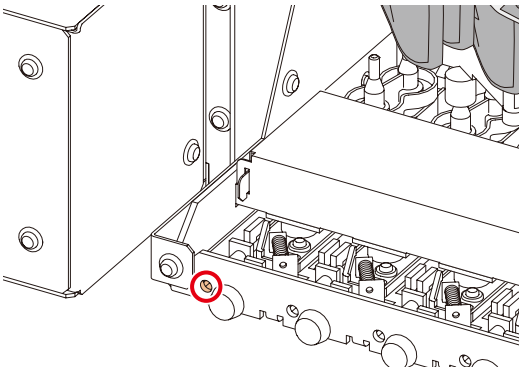
Top view



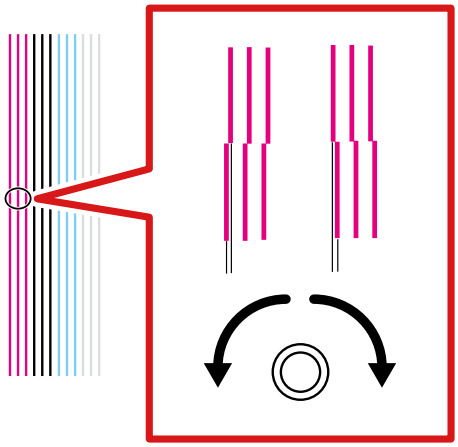
13. **Insert the 1.5 mm hexagonal wrench through the hole of the head carriage. Then, turn the adjustment screw to make the lines of each color in the test pattern straight.**

NOTE

The position of the printing moves 1 line by turning the screw approximately 3/4 turn.



- When the upper lines are shifting towards the left of the lower lines, turn the screw CW.
- When the upper lines are shifting towards the right of the lower lines, turn the screw CCW.

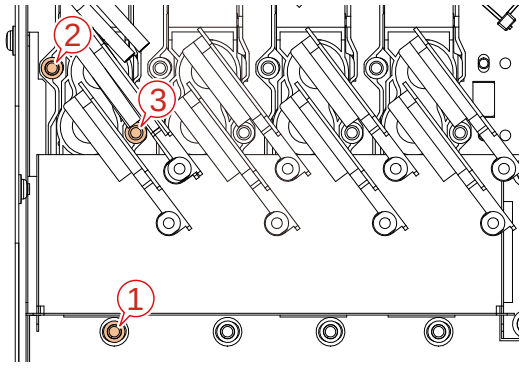


14. **Tighten the screws that secure the print head in the reverse order of loosening, using the torque driver (Torque value: 20cN·m).**

CAUTION

Be careful not to tighten them too hard.

Top view



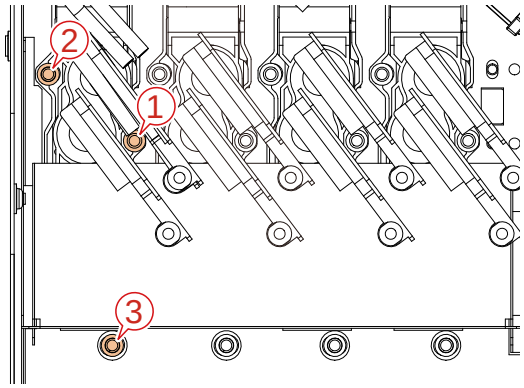
Vertical Adjustment

15. **Loosen three screws that secure the print head in the order as shown below.**

CAUTION

Loosen the screws that secure the print head approximately 1/2 turn. If the screws are too loose, it may affect the result of this alignment.

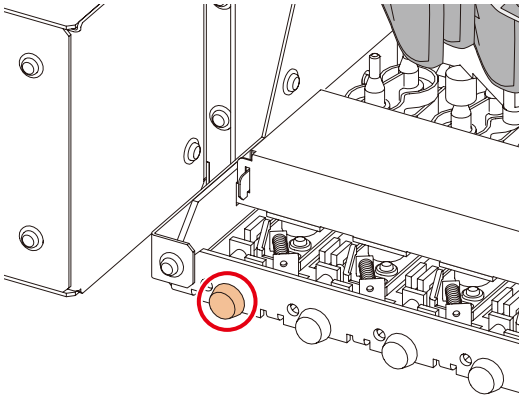
Top view



16. **Turn the adjustment screw to make the lines of each color in the test pattern straight.**

NOTE

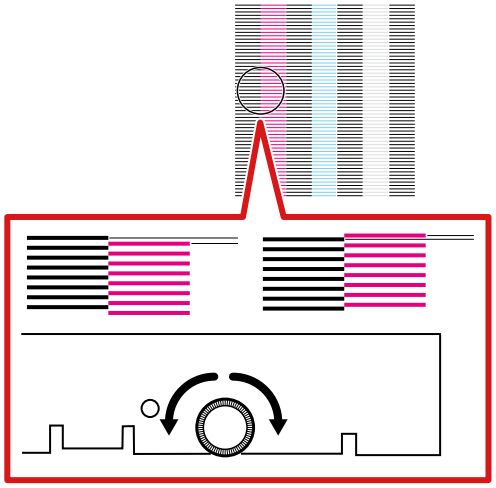
Position of the printing moves 1/2 line by turning the screw 3/4 turn.



CAUTION

Adjust the print head positions referring to the leftend K head as the base position. The position of K head on the left end does not need to be adjusted.

- When the lines other than K are above the K lines, turn the adjustment screw CW.
- When the lines other than K are below the K lines, turn the adjustment screw CCW.

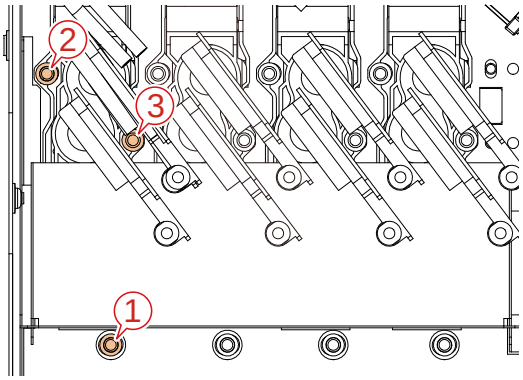


17. **Tighten three screws fixing the print head in the reverse order of loosening, using the torque driver (Torque value: 20cN·m).**

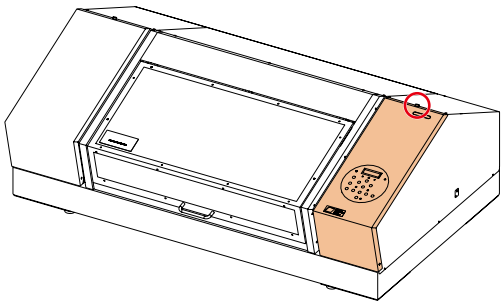
CAUTION

Be careful not to tighten them too hard.

Top view



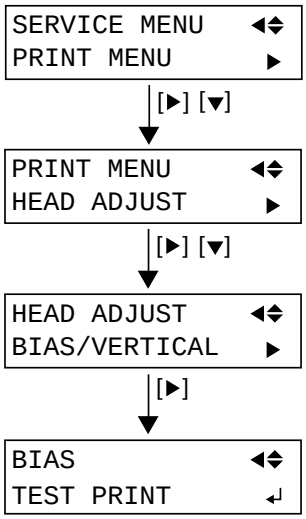
18. **Position the cover temporarily to prevent the ink from hardening. You do not have to secure the cover with the screw yet.**



19. Print the test pattern again. If the result is not satisfactory, repeat steps 6 to 15 . If the VERTICAL test print result is satisfactory, select [HEAD ADJUST] > [BIAS/VERTICAL] > [TEST PRINT], and print the test pattern again. If the BIAS/VERTICAL test print result is not satisfactory, repeat BIAS/VERTICAL adjustment.

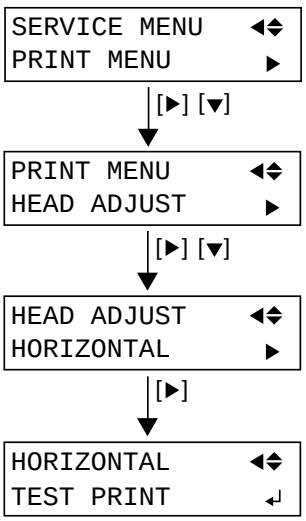
CAUTION

The shifting of lines should be less than 1/2 dot.

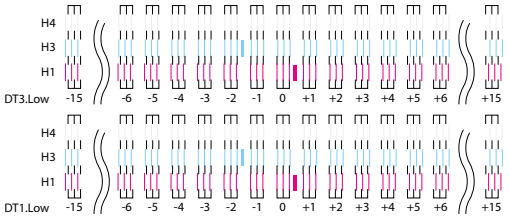


Horizontal Adjustment

Select [SERVICE MENU] > [PRINT MENU] > [HEAD ADJUST] > [HORIZONTAL] > [TEST PRINT], and press the [ENTER] key.



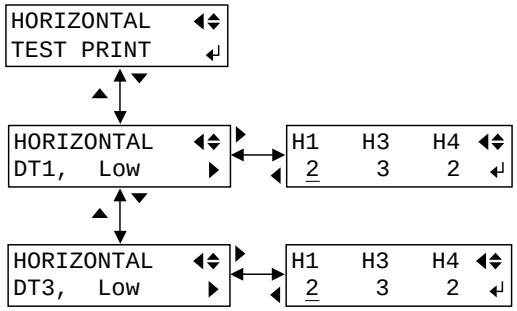
20. Following test pattern is printed. Find the position where the line of each color matches the K line and check the number. If it is difficult to select just one between two numbers, 1/2 is also available when setting up the value. The number with ■ is the current setting.



21. Select [HEAD ADJUST] > [DT1, Low] > [DT3, Low]. Enter the value you checked in step 19 with the [▲] [▼] keys. Press the[ENTER] key to confirm.

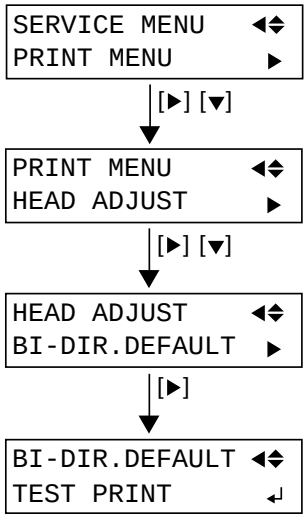
NOTE

Parameters can be entered in increments of 1/2.

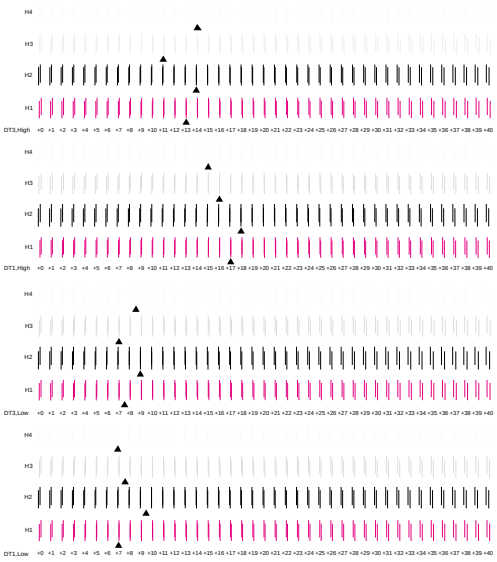


Bidirectional Adjustment

22. Select [PRINT MENU] > [HEAD ADJUST] > [BI-DIR. DEFAULT] > [TEST PRINT], and press the [ENTER] key.



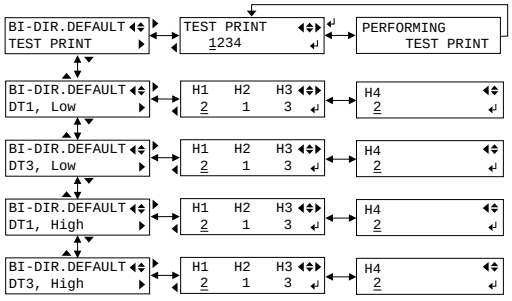
23. Following test pattern will be printed. Find the position where the two lines are overlapping and check the number of each color. If it is difficult to select just one between two numbers, 1/2 is also available when setting up the value. The number with ▲ is the current setting.



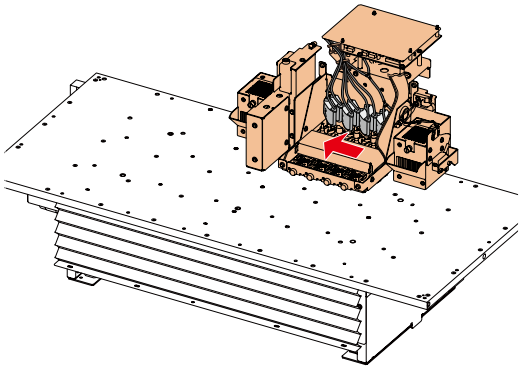
24. Select [DT1, Low] or [DT3, Low] or [DT1, High] or [DT3, High]. Enter the value you checked in step 23 with the [▲] [▼] keys. Then, press the [ENTER] key.

NOTE

Parameters can be entered in increments of 0.5.



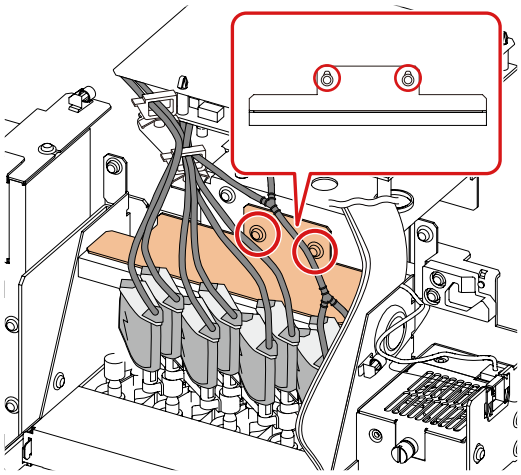
25. Move the head carriage by hand slowly leftwards.



26. Tighten two screws to secure the damper plate.

CAUTION

- Be careful not to press it down to the dampers. Dampers could break.
- Attach the screws at the bottom of the slotted screw hole.

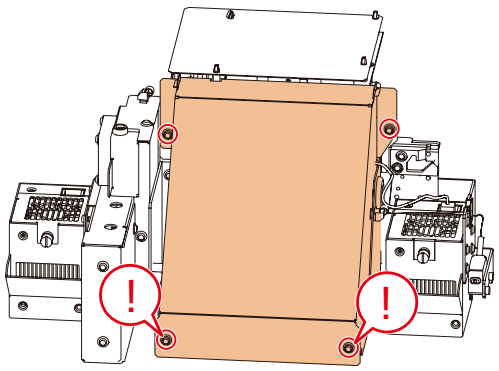


Attaching the Head Carriage Cover

27. Temporarily thread four screws shown in the figure to hold the head carriage cover. And fasten them without distorting the cover.

CAUTION

Be careful not to distort the head carriage cover when tightening two front screws. If the carriage is distorted, then the print head position may shift.



28. (End of procedure)

Limit Position & Maximum Scan Width Position Initialize

Information

Necessary tools

General tools
None

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Limit Position & Maximum Scan Width Position Initialize**

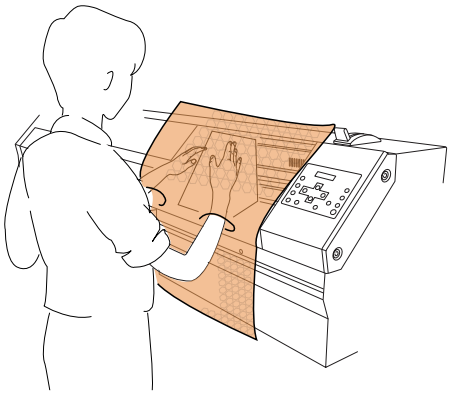
Referential time for work

Contents of work	Time
Limit position & maximum scan width position initialize	10 min.

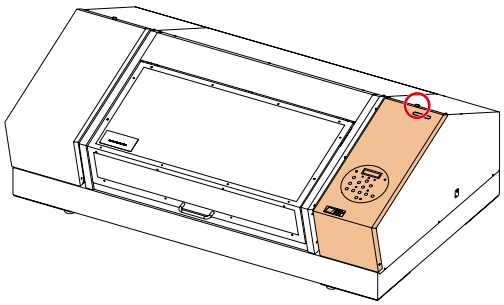
Procedure

CAUTION

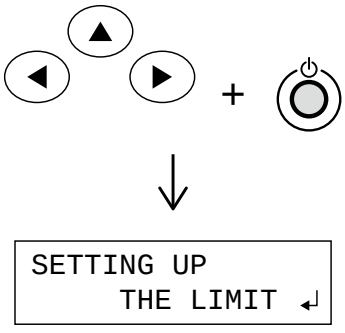
- This is for adjusting the relative distance between the limit sensor and the capping position, and also detecting the distance from the leftmost position of the head carriage movement to the limit sensor.
- When the limit position is not set correctly, it may cause some problems such as a head capping error.
- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



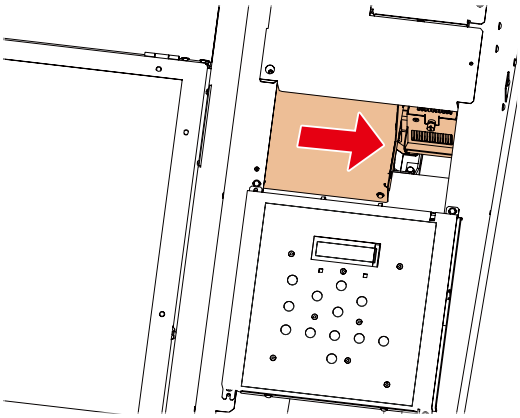
1. **Remove the screw that secures the cover.**



2. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▲] [▶] keys to enter the limit initialize mode.**

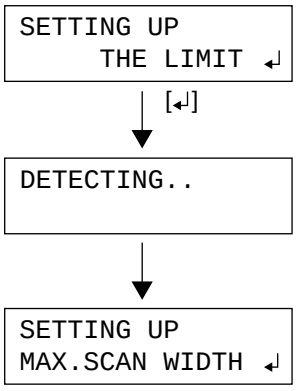


3. Move the head carriage to the lock position.



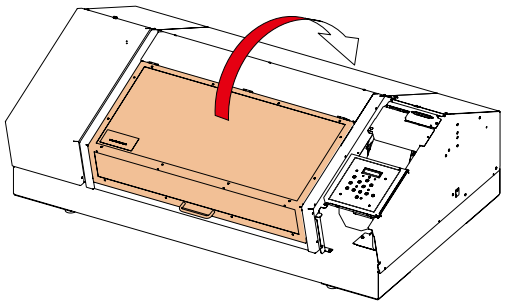
Limit Position Initialize

4. Confirm that the print head is properly capped, and press the [ENTER] key to start limit position initialize. The initialization is complete when the message below is displayed.

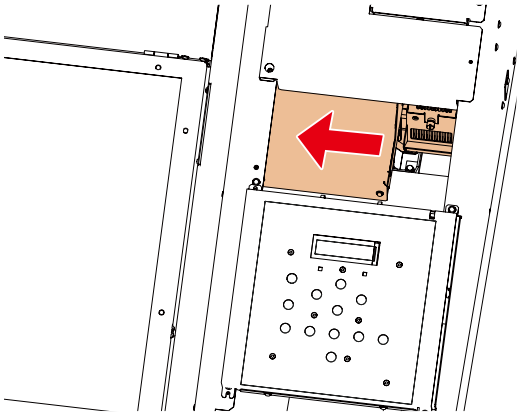


Maximum Scan Width Position Initialize

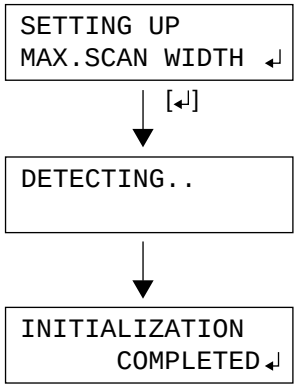
5. Open the cover.



6. Unlock the head carriage. Move the head carriage by hand slowly to the leftmost position of the head carriage movement.



7. Press the [ENTER] key to start the maximum scan width position initialize. The initialization is complete when the message below is displayed. Perform Chapter 2 "Flushing Position Adjustment".



8. (End of procedure)

Linear Encoder Setup

Information

Necessary tools

General tools
None

Special tools
None

Workflow

1. Linear encoder setup

Referential time for work

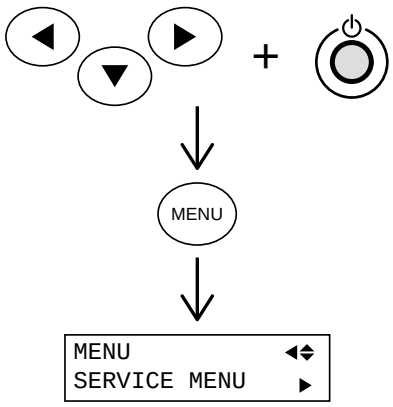
Contents of work	Time
Linear encoder setup	10 min.

Procedure

CAUTION

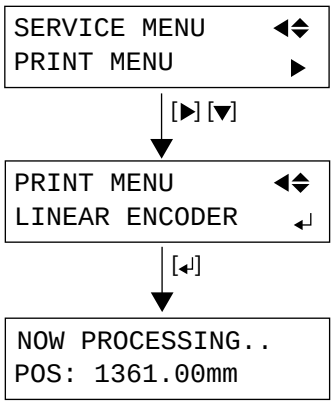
Linear encoder setup is performed to confirm that the installation of the linear encoder is proper, and also to confirm that it properly reads and corrects the width of the scale, which is stretched or compressed due to the operation environment, by the software coordinates. This operation is required when the limit sensor, encoder scale or encoder sensor is replaced or the position is adjusted.

1. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**



2. **Make sure to unload the media when it is set on the machine.**

3. **Select [SERVICE MENU] > [PRINT MENU] > [LINEAR ENCODER], and press the [ENTER] key.**



4. **One of the messages appears at the completion of the set up. In case of "SETUP FAILED", check the following.**

```
LINEAR ENCODER  ◄
SETUP COMPLETED
```

```
LINEAR ENCODER  ◄
SETUP FAILED
```

```
LINEAR ENCODER  ◄
HEADBOARD FAILED
```

- There is dirt/scratch on the encoder scale.
- There is dirt/scratch on the encoder sensor.
- The encoder scale is not between the encoder sensor.
- There is a backlash between the carriage motor gear and the drive gear.
- The carriage and the belt are not fixed properly.
- The cable connection is bad.

5. **(End of procedure)**

Flushing Position Adjustment

Information

Necessary tools

General tools
None

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. Flushing position adjustment

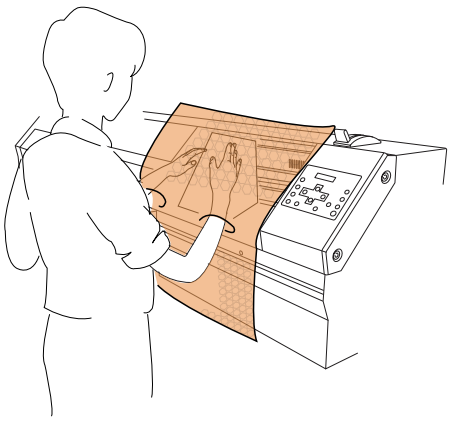
Referential time for work

Contents of work	Time
Flushing position adjustment	5 min.

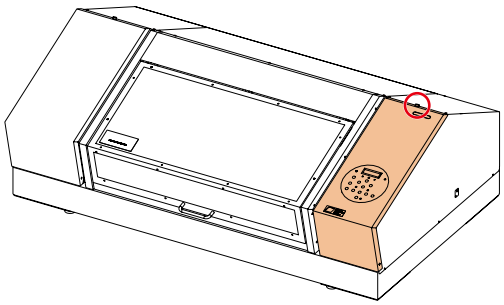
Procedure

CAUTION

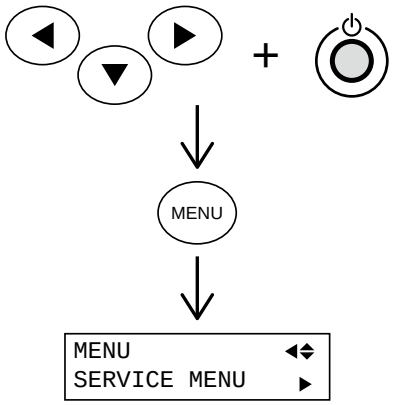
- This is to adjust the flushing position. This adjustment is NOT required when a cap top and a print head are removed or replaced. This adjustment is required after performing the limit position & maximum scan width position initialize. Without this adjustment, flushing may not be performed properly.
- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



1. Remove the screw that secures the cover.

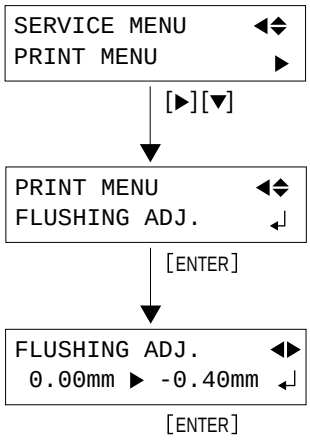


2. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



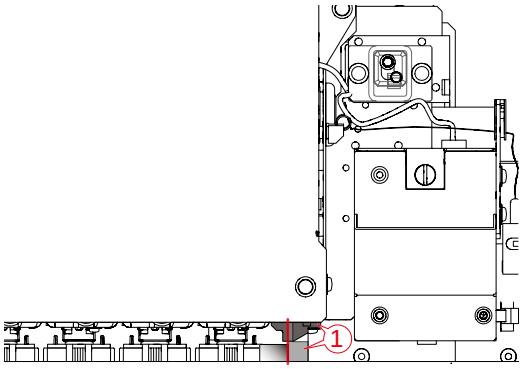
3. **Make sure to unload the media when it is set on the machine.**

4. **Select [SERVICE MENU] > [PRINT MENU] > [FLUSHING ADJ.], and press the [ENTER] key. The head carriage automatically moves to the current flushing position.**



5. **Move the cap tops and heads to the position where the cap case guide makes contact with the carriage cap guide by pressing the [◀] [▶] keys. Then, press the [ENTER] key to update the flushing position. When you press the [MENU] key, the flushing position is not updated and exiting the menu.**

1. Guide



6. **(End of procedure)**

Belt Tension Adjustment

Information

Necessary tools

General tools
No.2 Phillips screwdriver
3.0 mm hexagonal wrench

Special tools	
ST-001	TENSION GAUGE 2000GF/2000CN
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Belt tension adjustment**

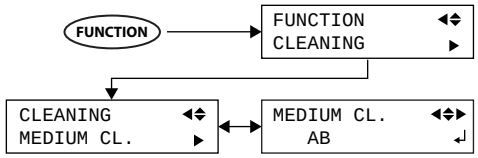
Referential time for work

Contents of work	Time
Belt tension adjustment	20 min.

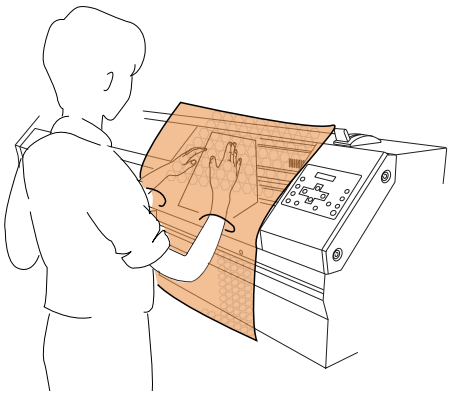
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

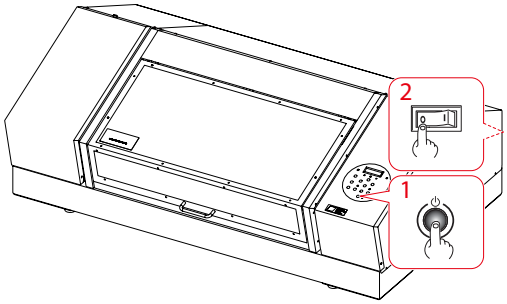


- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

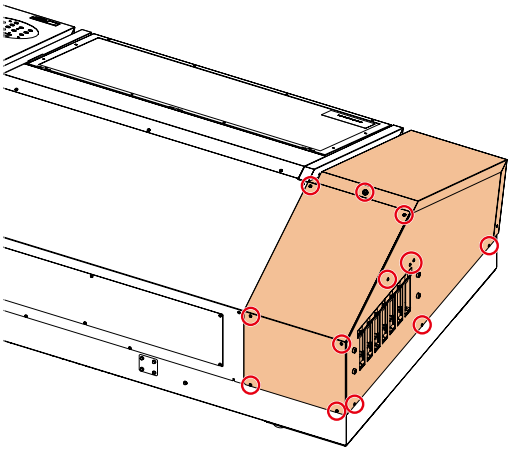


1. **Turn off the sub power SW, and then turn off the main power SW.**

1. Sub power SW
2. Main power SW

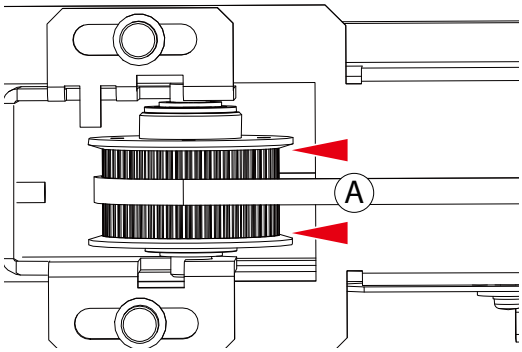


2. Remove 13 screws that secure the covers.

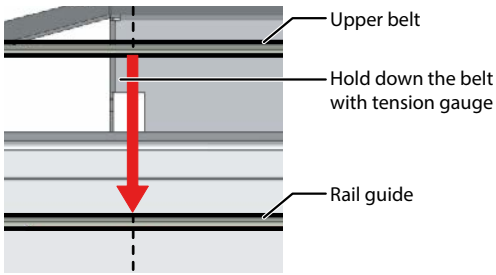


3. Measure the tension of the belt at the position [A] shown in the figure using TENSION GAUGE (ST-001). Press the upper belt downward with the gauge to make slight contact with the rail guide. The tension is proper when the measured value is 0.98kgf to 1.18kgf (9.8cN/m to 11.8cN/m). When the tension is not proper, move on to the next step and adjust the belt tension.

Top view



Front view

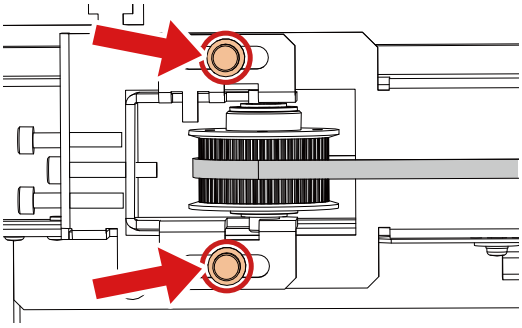


4. Loosen the 2 fixing screws which are located on the left end of the belt halfway round.

CAUTION

Be careful with the sharp edges around the belt when loosening the screws. It may cause injury.

Top view (left end of the belt)

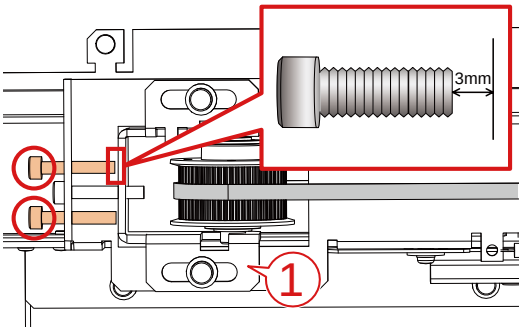


5. Insert a wrench through the holes on the side frame prepared for the adjustment, and loosen the two screws to make a gap of 3 mm between the tip of the screw and the idle pulley holder. (The belt tension cannot be adjusted higher when the screw contacts with the idle pulley holder.)

NOTE

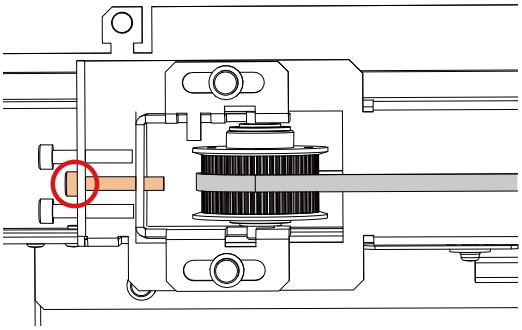
The gap between the screws and the idle pulley can be seen from both the front and rear side of the machine.

1. Idle pulley holder

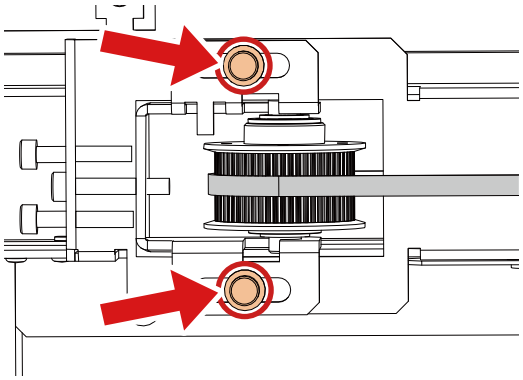


6. Turn the screw to adjust the value of the tension gauge to be within the proper value.

* To increase the tension: Turn the screw clockwise.
* To decrease the tension: Turn the screw counterclockwise.



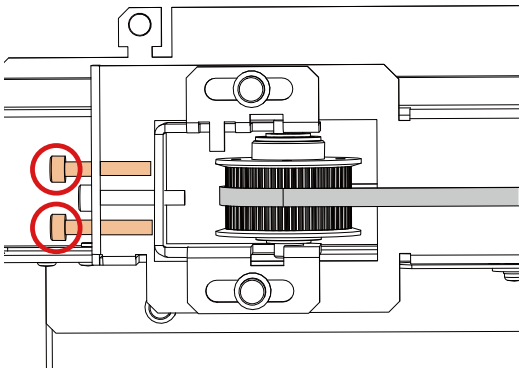
7. Tighten two screws, and again confirm that the tension is within the proper value.



8. Tighten two screws to slightly contact with the idle pulley holder.

CAUTION

Be careful not to tighten the screws too hard. It may move the adjusted idle pulley holder accidentally.



9. Perform the following.

9-1. Chapter 2 "Belt Position Adjustment"

10. (End of procedure)

Belt Position Adjustment

Information

Necessary tools

General tools
No.2 Phillips screwdriver
3.0 mm hexagonal wrench

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. Belt position adjustment

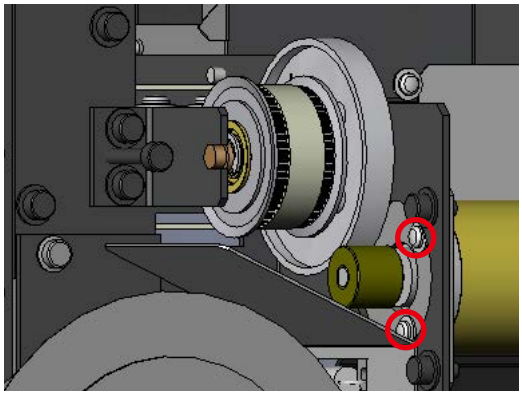
Referential time for work

Contents of work	Time
Belt position adjustment	30 min.

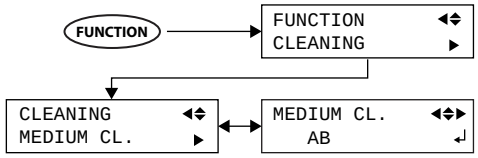
Procedure

CAUTION

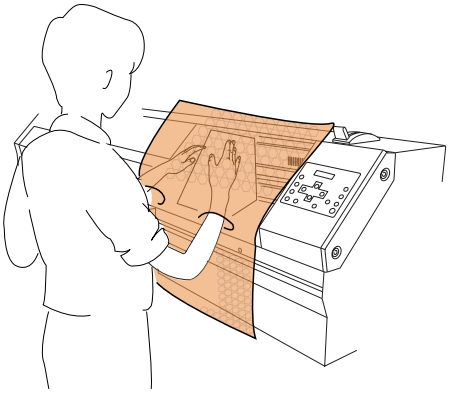
- This adjustment is to prevent the belt wear which is caused by the belt contacting with the pulley flanges excessively. The belt position needs to be confirmed and adjusted if necessary after the belt tension adjustment.
- When adjusting the drive pulley side, the pressure of engagement between the white gear of the drive pulley and the scan motor gear is changed, and it leads to a tooth-missing of the white gear or a failure of the scan motor. After the belt position adjustment, be sure to loosen the screws fixing the scan motor and re-tighten them again.



- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

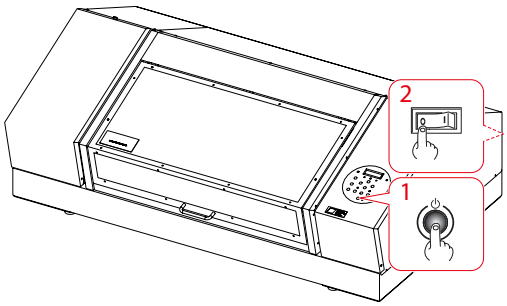


- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

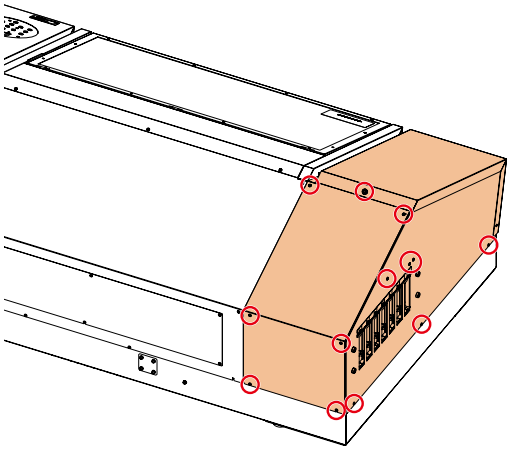


1. Turn off the sub power SW, and then turn off the main power SW.

1. Sub power SW
2. Main power SW

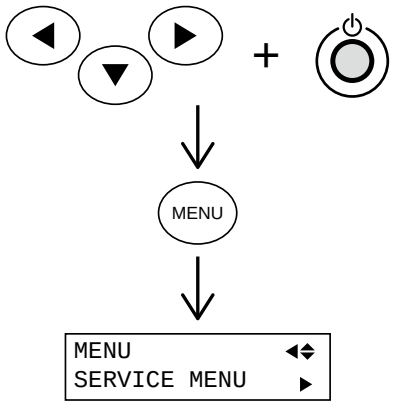


2. Remove 13 screws that secure the covers.



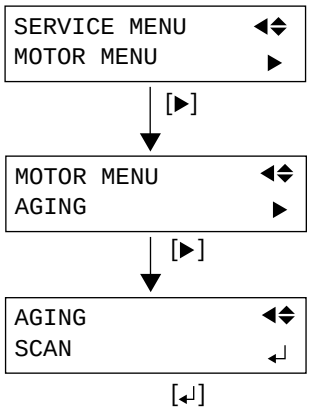
3. Confirm that the belt tension adjustment is completed.

4. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



Belt Aging

5. Select [SERVICE MENU] > [MOTOR MENU] > [AGING] > [SCAN]], and press the [ENTER] key.

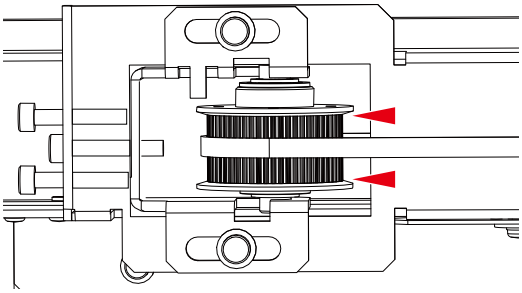


6. Confirm the position of the belt. The position is proper when the belt is not touching the flanges excessively. When the position is proper, close this belt position adjustment. When it is not proper, make adjustment as follows.

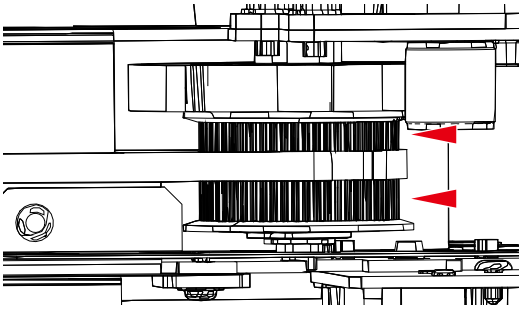
NOTE

Belt partly touching the flange is acceptable.

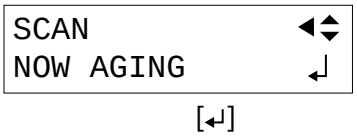
Left end of the belt



Right end of the belt



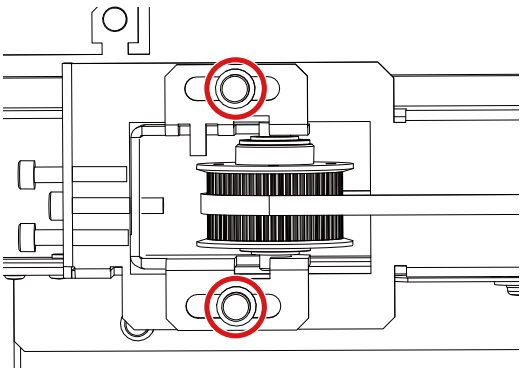
7. Press the [ENTER] key to cancel aging.



8. Loosen two fixing screws located at the left end of the belt eighth to quarter round.

CAUTION

When the screw is loosen more than necessary, it gives difficulty in adjusting the belt. Also, you need to be cautious with the sharp edges around it when turning the screws. It may cause injury.



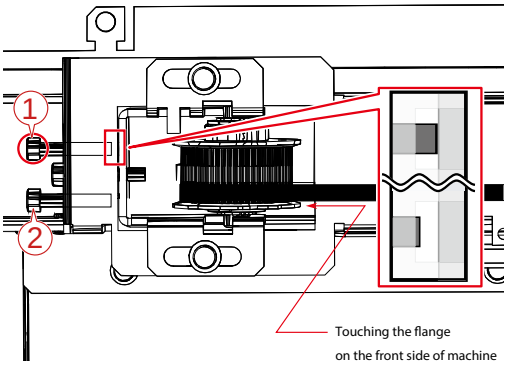
9. **Insert a wrench through the holes on the side frame prepared for the adjustment. Then, turn the adjustment screw in reference to the following and adjust the position of the belt.**

When the belt is leaning toward the front side of the machine:

☞ Turn the screw 1 carefully in CW to press it to the idle pulley holder.

* Make sure to have a gap of 3mm between screw 2 and the idle pulley holder when turning screw 1.

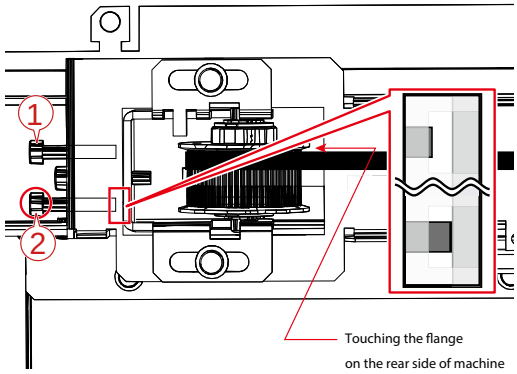
1. Idle pulley holder



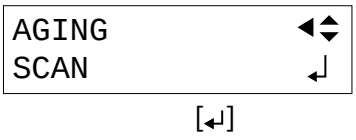
When the belt is leaning toward the rear side of the machine:

☞ Turn the screw 2 carefully in CW to press it to the idle pulley holder

* Make sure to have a gap of 3mm between the screw 1 and the idle pulley holder.



10. **Press the [ENTER] key and perform aging again.**

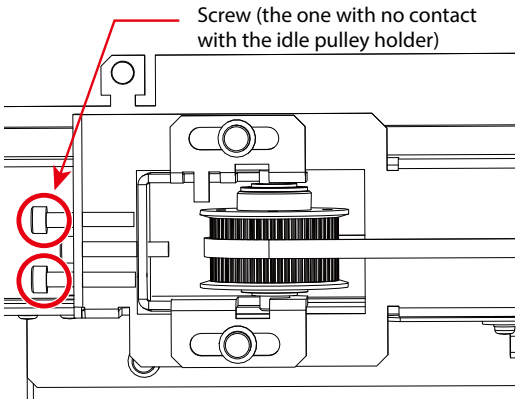


[↵]

11. **Tighten one of the screws that has no contact with the idle pulley holder to slightly touch the idle pulley holder.**

CAUTION

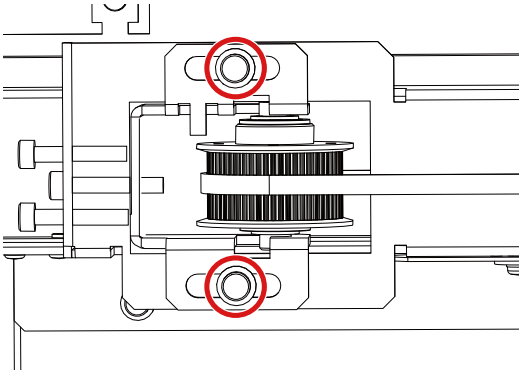
Make sure not to fasten the screws too hard. It may move the idle pulley holder accidentally.



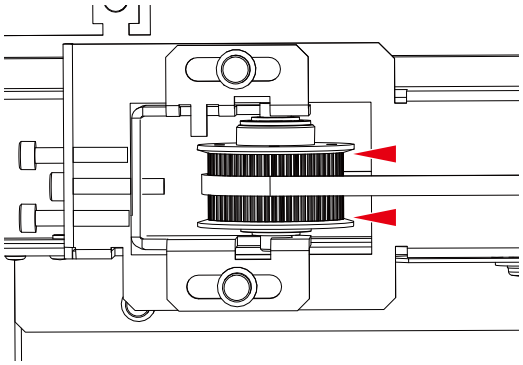
12. **Tighten two fixing screws.**

CAUTION

Be cautious with the moving carriages and cableveyor during this procedure, and also with the sharp edges of the mechanical parts around it.



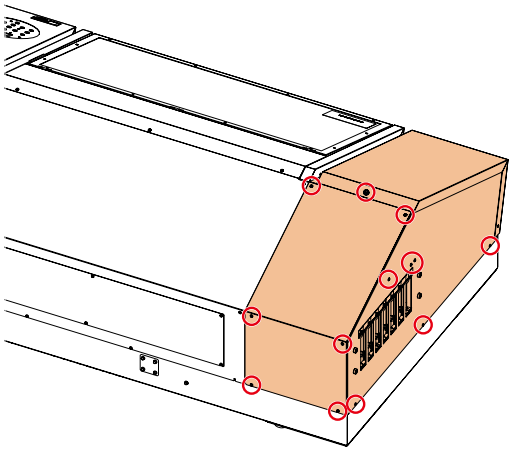
13. Confirm that the belt is not touching the pulley flanges excessively while the carriages are in the printing area. When the belt is in improper position, adjust it again. When it is proper, press the [ENTER] key to cancel aging.



SCAN ◀▲▼
NOW AGING ↵

[↵]

14. Tighten 13 screws to secure the covers.



15. (End of procedure)

Calibration (Feeding Direction)

Information

Necessary tools

General tools
Media

Special tools
None

Workflow

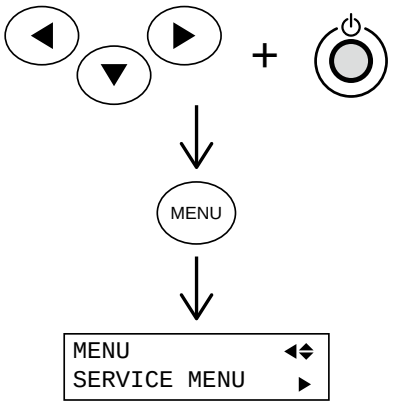
1. Calibration (feeding direction)

Referential time for work

Contents of work	Time
Calibration (feeding direction)	10 min.

Procedure

1. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**



2. **Set PET-G film on the machine.**

NOTE

Press the [PAUSE/VACUUM] button to start the vacuum fan.

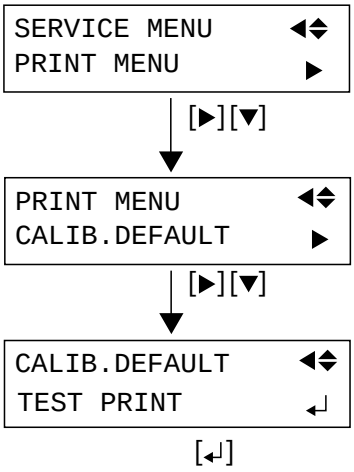
CAUTION

Set the table height by auto-detection.

3. **Select [CALIB.DEFAULT] > [TEST PRINT], and press the [ENTER] key.**

NOTE

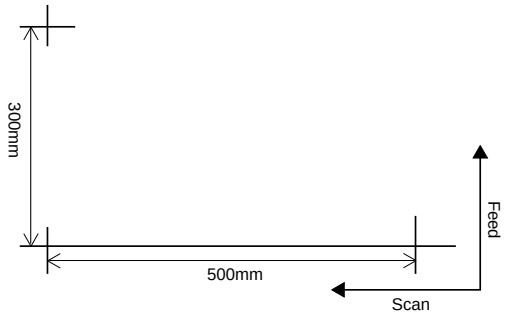
The test print requires 510mm or more of the media setup width.



4. **The test pattern is printed. Measure the length of the feed direction and use the value to calculate the calibration amount with the formula shown in step 5.**

NOTE

The test pattern is always printed with offset 0.00%. Even if a correction is made in the [SETTING] menu, the test pattern is not changed.



5. **Calculate the amount to be calibrated with the formula below.**

CA = Calibration amount

CL = Commanded length (300MM)

ML = Measured length

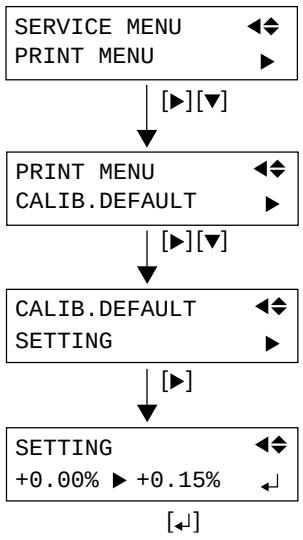
Formula

$$\frac{CL - ML}{ML} \times 100$$

6. **Select [CALIB.DEFAULT] > [SETTING], and enter the calibration value with [▲] [▼] keys. the Press the [ENTER] key to save the setting.**

NOTE

Parameters can be entered in increments of 0.01%. (MAX. +2.00% to MIN. -2.00%)



7. **(End of procedure)**

UV Lamp Check

Information

Necessary tools

General tools
No.1 Phillips screwdriver
No.2 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. UV lamp check

Referential time for work

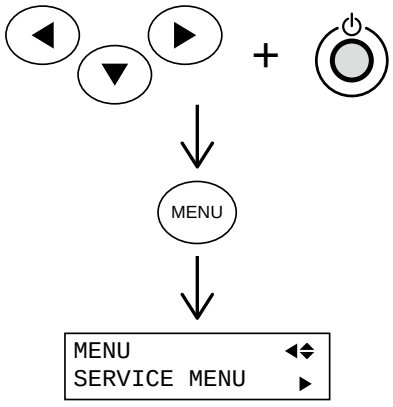
Contents of work	Time
UV lamp check	5 min.

Procedure

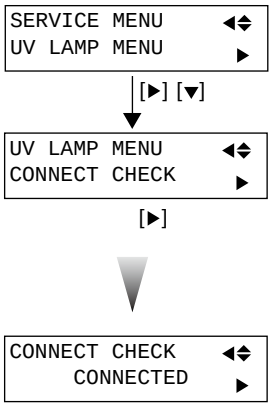
NOTE

- This is required when the UV lamp unit is installed.
- This is to check whether the UV lamp unit operates properly.

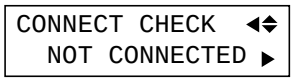
1. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.

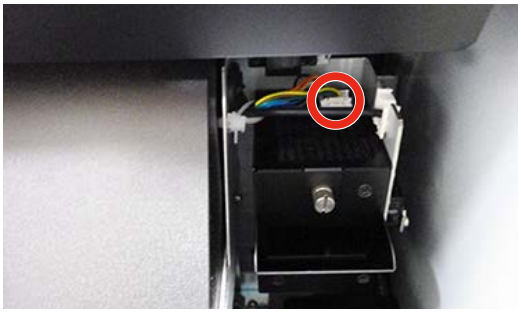


2. Select [SERVICE MENU] > [UV LAMP MENU] > [CONNECT CHECK], and press the [ENTER] key. Check that the screen below appears.

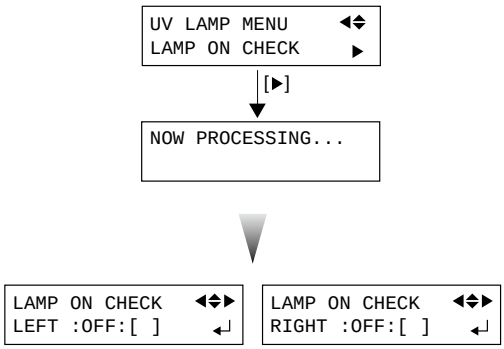


3. If the screen shown below appears, check that the UV Lamps are connected properly.



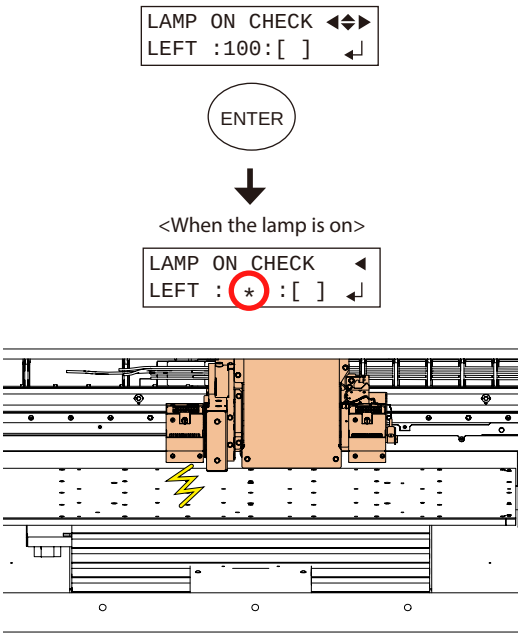


4. Go back to [UV LAMP MENU] and select [LAMP ON CHECK], and press the [▶] key to enter the menu. The head carriage moves to a location permitting UV lamp replacement, and then the screen below appears.

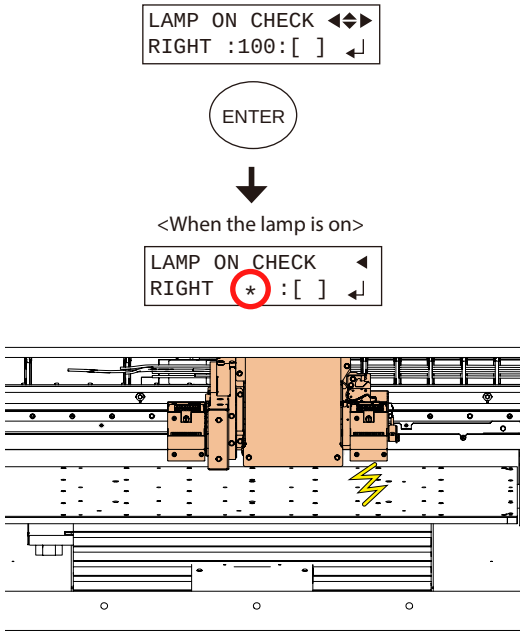


5. Select [OFF] or [100] by pressing the [▲] [▼] keys and press the [ENTER] key. Check if the UV lamp turns on/off while the cover is closed.

Left

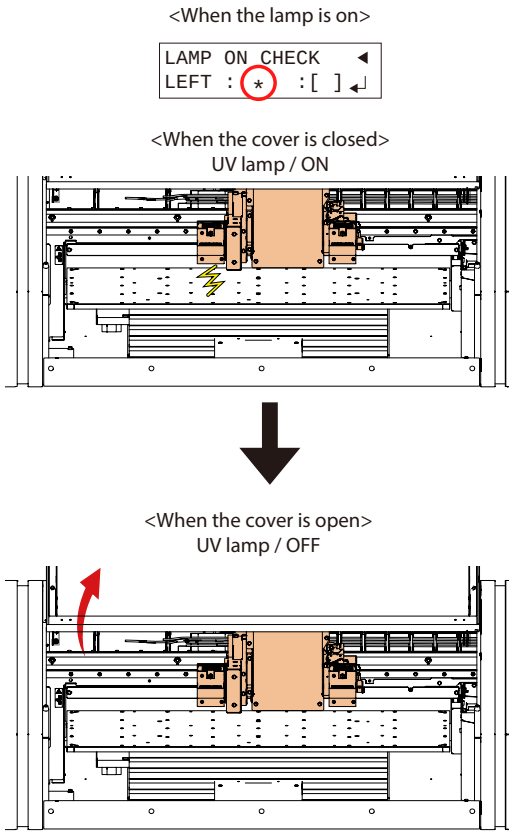


Right



6. Turn on the [RIGHT] and [LEFT] UV lamps on the operation panel while the cover is closed. See if the UV lamps turn on/off as you open and close the cover.

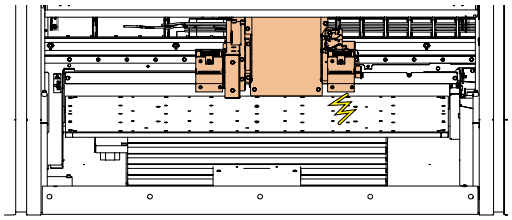
Left



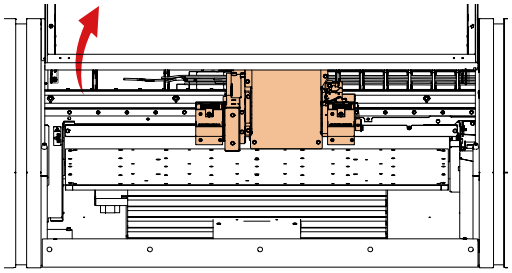
Right

<When the lamp is on>

<When the cover is closed>
UV lamp / ON



<When the cover is open>
UV lamp / OFF



7. **(End of procedure)**

UV Lamp Illuminance Measurement 13

Information

Necessary tools

General tools
None

Special tools	
1000021605	SET,PWR-M C6080-385-NF,E15348-01 SV

Workflow

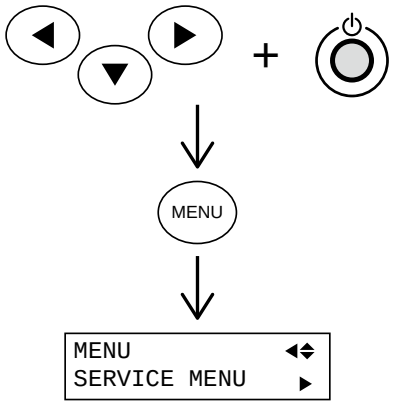
1. UV lamp illuminance measurement

Referential time for work

Contents of work	Time
UV lamp illuminance measurement	10 min.

Procedure

1. **Turn on the power switch and enter the service mode.**

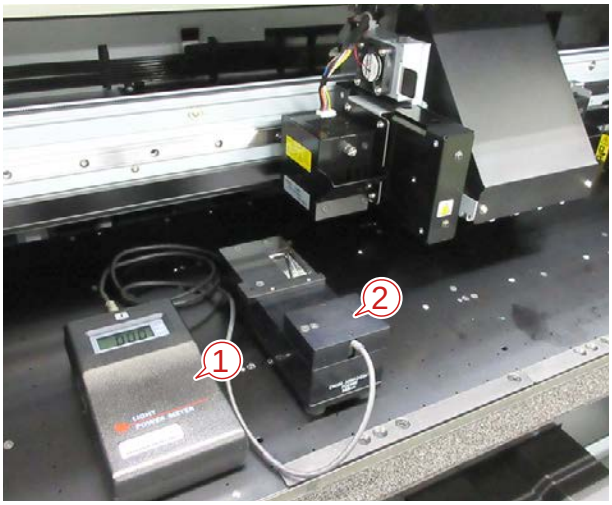


2. **Select [SERVICE MENU] > [UV LAMP MENU] > [UV POWER METER] and press the [▶] key. Print-head carriage and table move to the set positions.**

NOTE

After the print-head carriage and table stop moving, move the carriage with your hand. You can control the table height by pressing table [UP] [DOWN] keys.

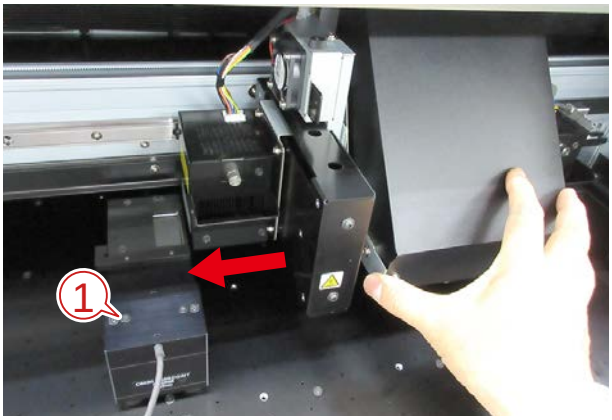
3. **Put the illuminance measuring tool and jig (SET,PWR-M C6080-385-NF,E15348-01 SV) next to the left UV lamp.**



1. Illuminance measuring tool
2. Measuring jig

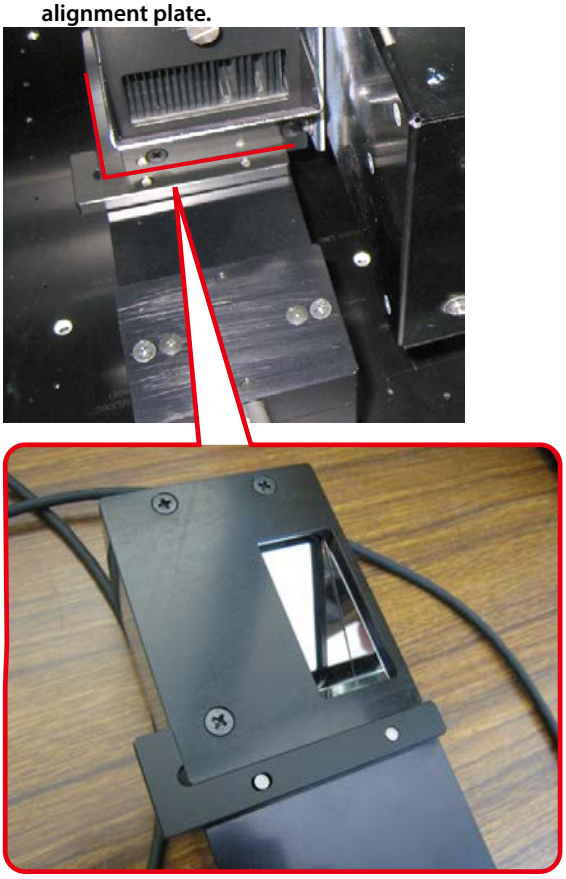
4. **Adjust the table height by table [UP] [DOWN] keys so that the gap between the measuring jig and the left UV lamp becomes within 0.3 mm.**

5. **Confirm that the UV lamp does not make contact with the measuring jig when you move the print-head carriage leftward. If the lamp makes contact with the jig, lower the table by one level.**



1. Measuring jig

6. **Bring the left UV lamp into contact with the alignment plate.**



1. Alignment plate

NOTE

Place the UV lamp so that its front and left side surfaces match the alignment plate.

7. **Close the front cover, and press the [▲] [▼] keys to set the value to "100". Press the [ENTER] key to light the UV lamp.**

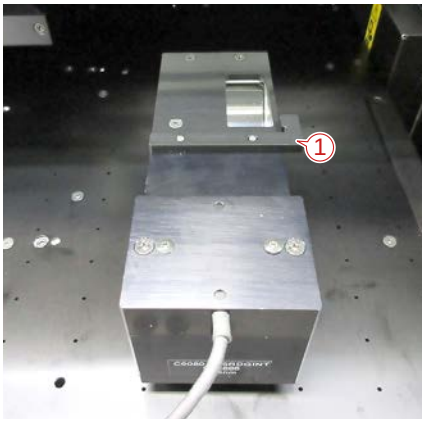
8. **Wait for 3 minutes after lighting the UV lamp and read the measured value of the measuring tool.**

NOTE

Measured value criterion: 90 or more

9. **Press the [▲] [▼] keys to set the value from "100" to "OFF". Press the [ENTER] key to turn off the UV lamp.**

10. **Remove the alignment plate and attach it to the jig so that the L-shaped part is on the right side. Then put the measuring jig next to the right UV lamp.**



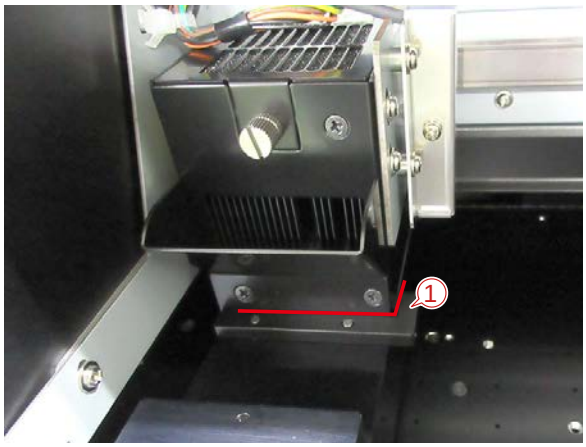
1. Alignment plate

11. **Adjust the table height by table [UP] [DOWN] keys so that the gap between the measuring jig and right UV lamp becomes within 0.3 mm.**

12. **Confirm that the UV lamp does not make contact with the measuring jig when you move the print-head carriage rightward. If the lamp makes contact with the jig, lower the table by one level.**

1. Measuring jig

13. **Bring the right UV lamp into contact with the alignment plate.**



1. Alignment plate

NOTE

Place the UV lamp so that its front and left side surfaces match the alignment plate.

14. **Close the front cover, and press the [▲] [▼] keys to set the value to "100". Press the [ENTER] key to light the UV lamp.**

15. Wait for 3 minutes after lighting the UV lamp and read the measured value of the measuring tool.

NOTE

Measured value criterion: 90 or more

16. **Press the [▲] [▼] keys to set the value from "100" to "OFF". Press the [ENTER] key to turn off the UV lamp.**

17. Remove the illuminance measuring tool and jig from the table.

NOTE

When the machine exits the measurement mode, the print-head carriage starts to move. Remove the measuing tool and jig beforehand so as not to cause any damage in the UV lamp or the measuring tool and jig, or the measuring tool and jig do not get caught.

18. **Press the [◀] key and exit the measurement mode.**

Laser Pointer Position Adjustment

Information

Necessary tools

General tools
Clear film for test print

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Laser pointer position adjustment**

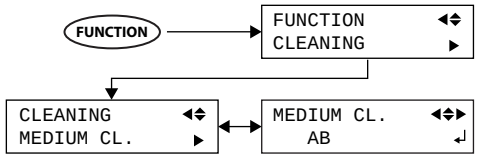
Referential time for work

Contents of work	Time
Laser pointer position adjustment	5 min.

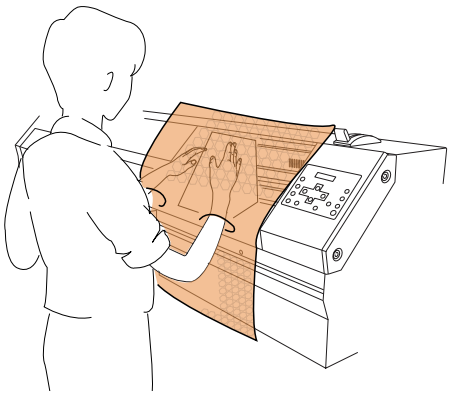
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



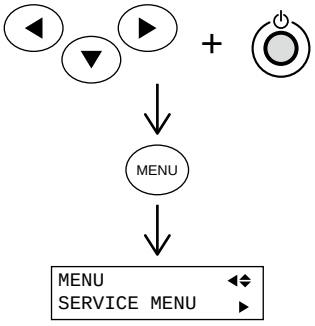
- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



NOTE

- This adjustment is required when the laser pointer is removed or replaced.
- This adjustment is to adjust the position of the print head and the laser pointer.

2. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



3. Setup the clear film on the machine.

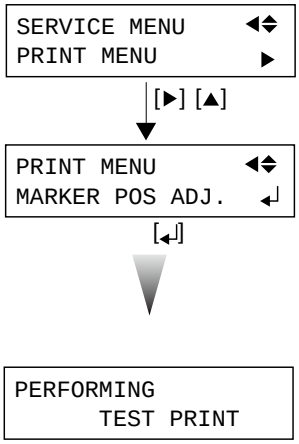
NOTE

Press the [PAUSE/VACUUM] button to start the vacuum fan.

CAUTION

Set the table height by auto detection.

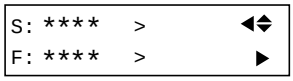
4. Select [SERVICE MENU] > [PRINT MENU] > [MARKER POS ADJ.], and press the [ENTER] key. A test pattern is printed.

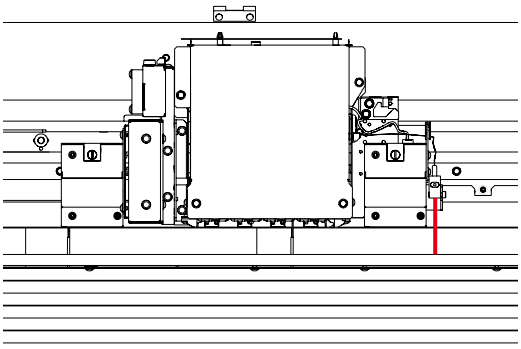


5. After the test print, the head carriage moves to above the test pattern automatically.

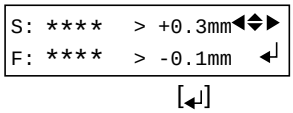
CAUTION

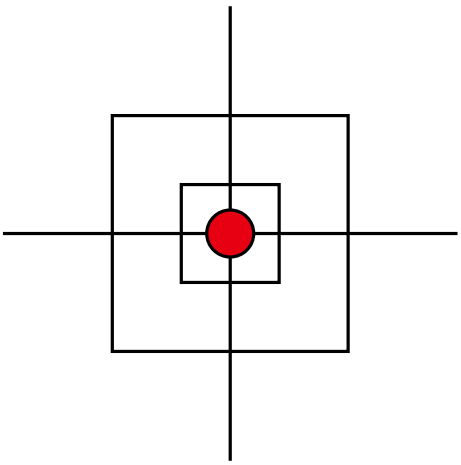
When the laser pointer position is not adjusted, the value of the LCD will be displayed as [****].





6. Move the head carriage to the position where the laser pointer points the centermost square of the test pattern by pressing the [▲] [▼] [◀] [▶] keys. Then, press the [ENTER] key to update the laser pointer position. When you press the [MENU] key, the laser pointer position is not updated and exiting the menu.





7. Perform the following:

7-1. Chapter 2 "Print Area Adjustment"

8. (End of procedure)

Print Area Adjustment

Information

Necessary tools

General tools
Clear film for test print

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Print area adjustment**

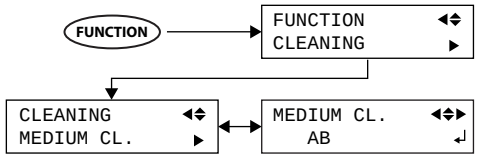
Referential time for work

Contents of work	Time
Print area adjustment	15 min.

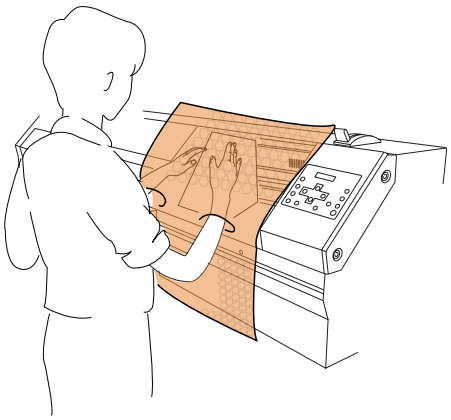
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

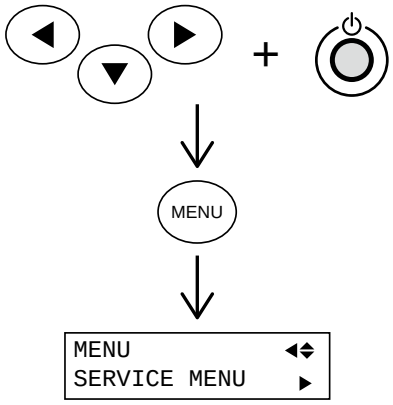


- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

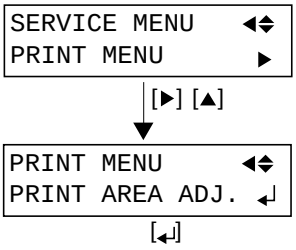


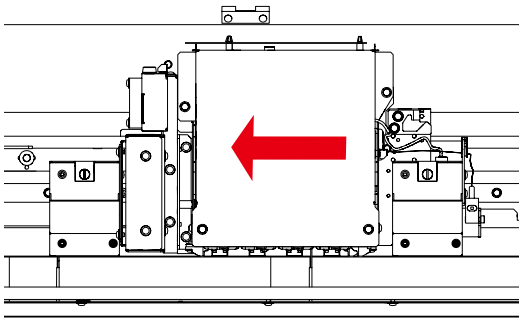
- This adjustment is to adjust the print area on the table and the operation area of the laser pointer. This adjustment is required when the laser pointer or table plate is removed or replaced.

1. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**

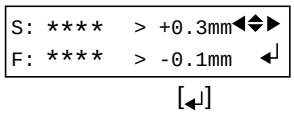


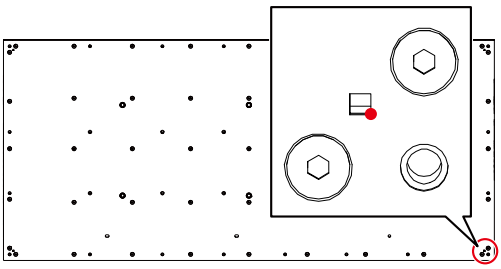
2. Select [SERVICE MENU] > [PRINT MENU] > [PRINT AREA ADJ.], and press the [ENTER] key. The head carriage moves to above the table automatically.





3. Move the head carriage to the position where the laser pointer points lower right of the print area by pressing the [▲] [▼] [◀] [▶] keys. Then, press the [ENTER] key to update the lower right position of the print area. When you press the [MENU] key, the lower right position of the print area is not updated and exiting the menu.

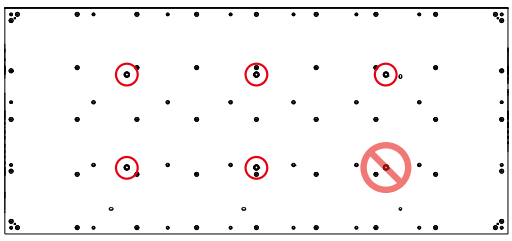




4. Loosen five screws that secure the table plate.

CAUTION

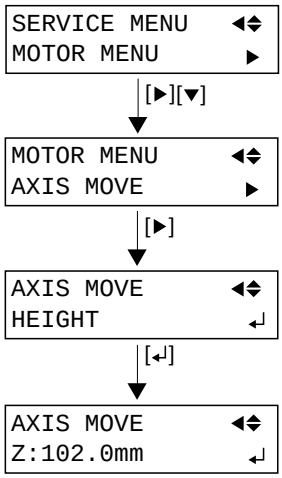
Do not loosen the screw that secure the lower right screw hole of the table plate.



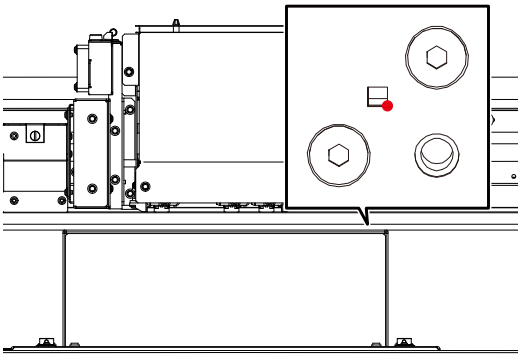
5. Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and set the height to 102.0 mm. Then, unlock the head carriage and move it leftwards by hand.

CAUTION

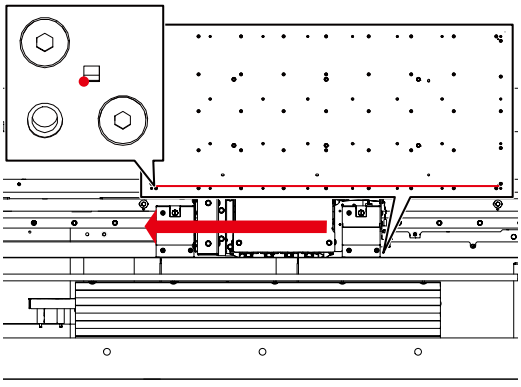
Do not press the [ENTER] key.



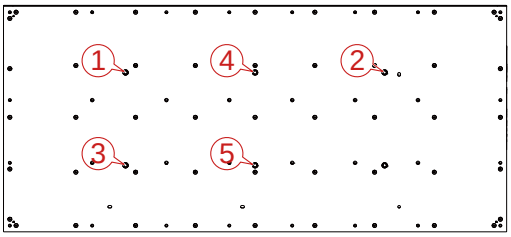
6. Move the table by pressing the [▲] [▼] keys for FEED AXIS, and move the head carriage by hand for SCAN AXIS so that the laser pointer points lower right position of the print area.



7. Move the head carriage slowly by hand for SCAN AXIS, and adjust the table plate position so that the laser pointer points lower left position of the print area.



8. Tighten five screws in the order as shown below.



9. (End of procedure)

Table Height Adjustment ⚠8

Information

Necessary tools

General tools
Block
Media

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113
3000000188	SPACER,SHIM RING RF004010010
31199905AS	SCRW SET,SET CONE M3*16 NI 20 PCS

Workflow

1. **Table height adjustment**

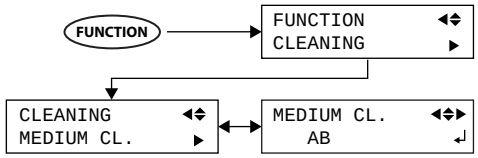
Referential time for work

Contents of work	Time
Table height adjustment	20 min.

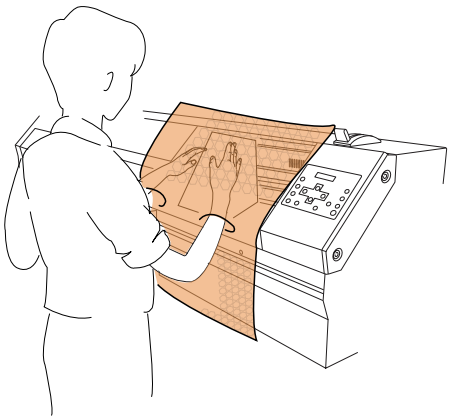
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

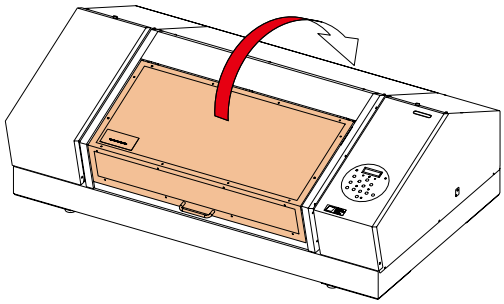


- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

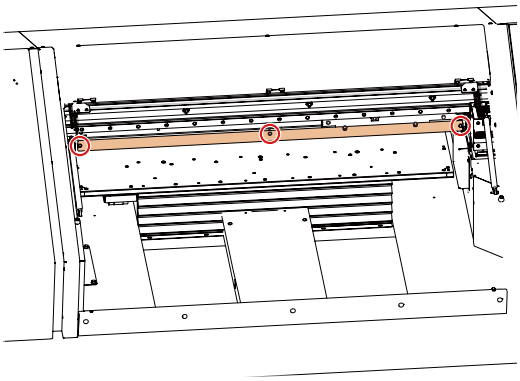


- This adjustment is to adjust the table height parallel to the LM guide. This adjustment is required when the table unit is replaced. This adjustment is NOT required when you remove the table unit and replace the same one. After this adjustment, following adjustments are required:
  - Head height adjustment
  - UV lamp position adjustment
  - Head gap sensor adjustment
  - Print area adjustment
- A parallelepiped block is required for this adjustment.
- Recommended media for this adjustment is PET-G.

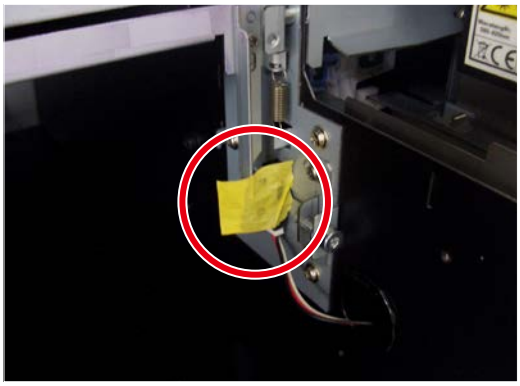
1. **Open the cover.**



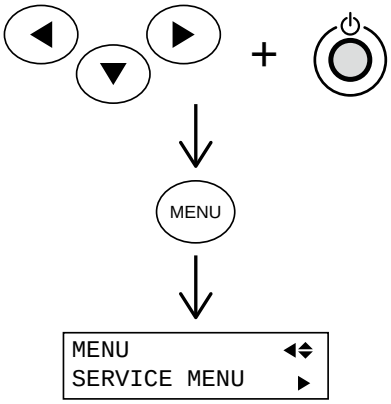
2. **Remove three screws that secure the head gap sensor plate.**



3. **Tape the sensor plate shown in the figure in the place to deauthorize the head gap sensor.**



4. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**



Measuring the Distance at the Four Corners of the Print Area

5. **Measure the distance between the LM guide and the tabletop at the nine corners of the print area. After measuring the distance, slip ring shims between the table plate and the surface of the table unit to adjust the table height.**

5-1. Measure the distance at the lower-right corner of the print area as shown in the figure.

5-2. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT]. Move the table unit by pressing the [▲] [▼] keys so that the front line of the engraved line of the table plate (= print area) is located under the LM guide .

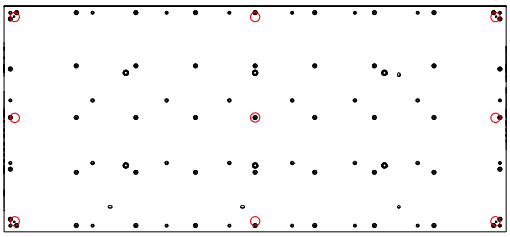
5-3. Set the block on the lower-right coner of the print area, and move up the table by pressing the Z height keys.

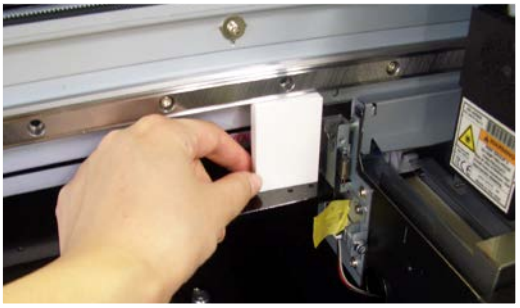
5-4. Move up the table until the block touches the LM guide, then remove the block.

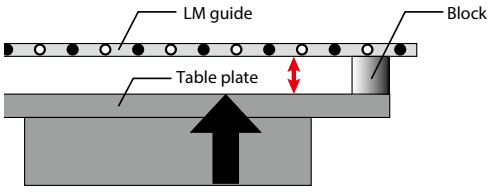
5-5. Move the table up 0.1 mm and insert the block on the same place again.

5-6. Repeat this step until the space between the LM guide and the tabletop is not enough to insert the block.

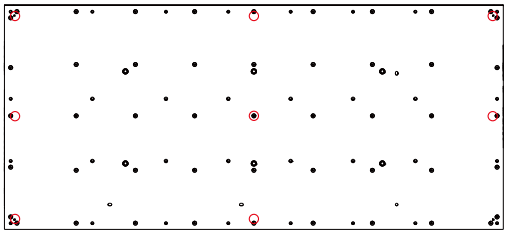
Top view



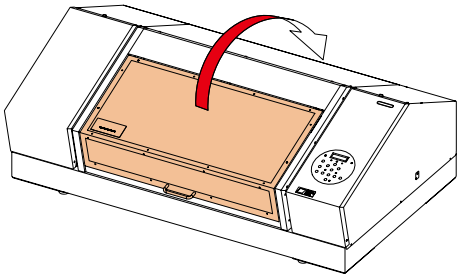




6. Measure the distance at the other five points in the same way.



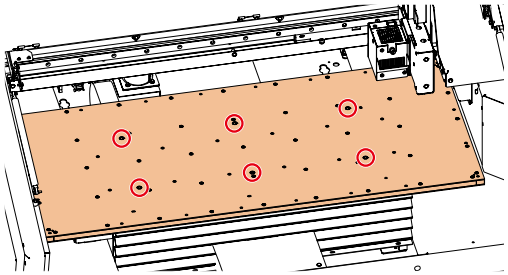
7. Open the cover.



8. Remove six screws that secure the table plate.

CAUTION

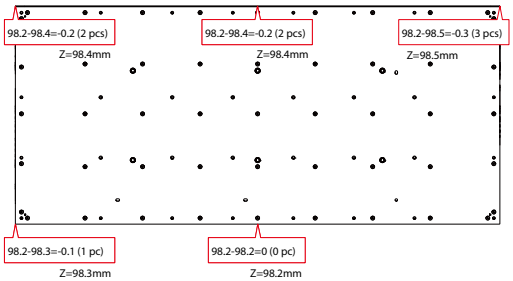
The ring shim is slipped between the table plate and the surface of the table unit. Remove it with tweezers. The ring shim will be reused at step 7.



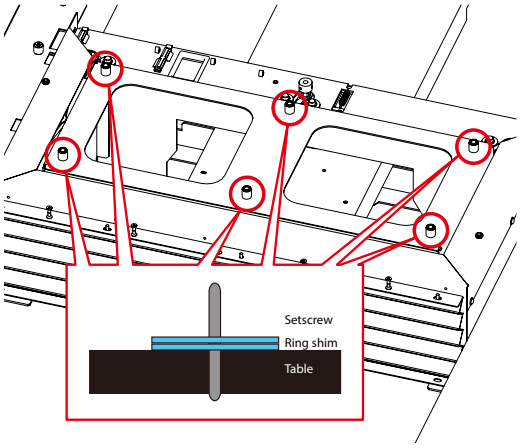
9. Confirm that how many ring shims are necessary at the corners refering to the value measured at step 5 and 6. The position which shows the lowest value (It means the position is highest.) is the reference position.

NOTE

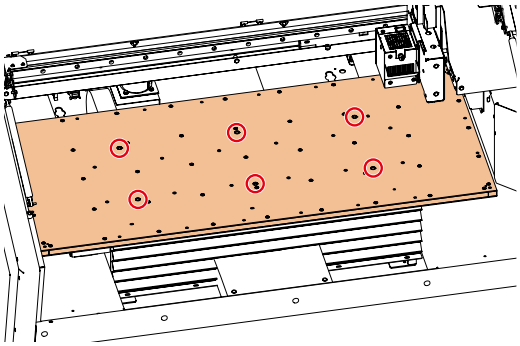
For instance, if the values are as shown in the figure, substract the each value of the three corners from the value of the lower right hand corner. Then calculate the required numbers of the ring shim to fill the gap of the corners.



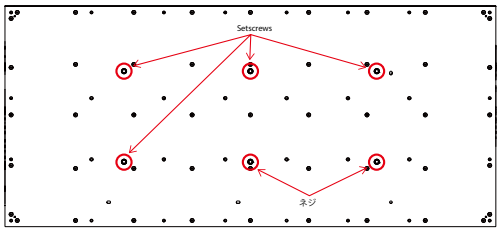
10. Install the set screw for adjustment to the screw hole of the table unit and put the ring shim into the setscrew.



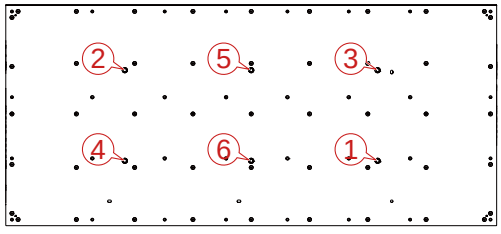
11. Position the table plate by inserting to the setscrew.



12. Thread the screw that secures the table plate where the setscrew is not installed. Remove the setscrew and thread the table plate with four screws temporarily.



13. Fully tighten six screws in the order as shown below.



14. **Perform the following adjustments:**

14-1. Chapter 2 "Print Head Height Adjustment"

14-2. Chapter 2 "UV Lamp Height Adjustment"

14-3. Chapter 2 "Head Gap Sensor Position Adjustment"

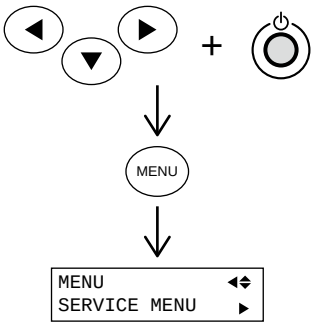
14-4. Chapter 2 "Print Area Adjustment"

14-5. Chapter 2 "Print Head Alignment (Horizontal)"

14-6. Chapter 2 "Print Head Alignment (Bidirectional)"

15. **When all adjustments are finished, perform test print referring to the following procedure.**

16. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**



17. **Setup the clear film on the machine.**

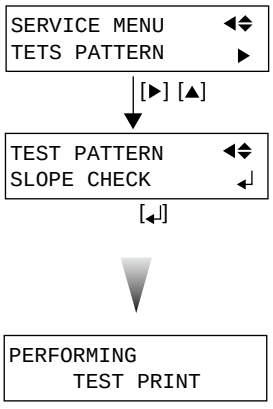
NOTE

Press the [PAUSE/VACUUM] button to start the vacuum fan.

CAUTION

Set the table height by auto detection.

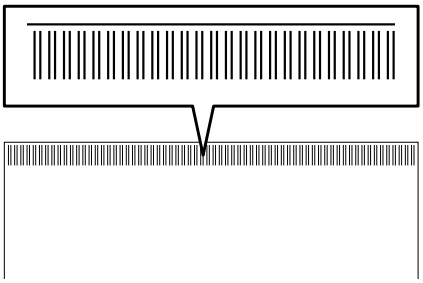
18. **Select [SERVICE MENU] > [TEST PATTERN] > [SLOPE CHECK] and press the [ENTER] key.**



19. **A test pattern is printed. Confirm that the interval of the two lines are same in the test pattern.**

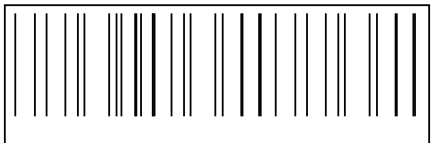
OK

* The interval of two lines are same.

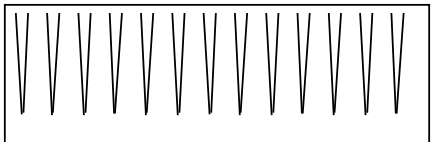


No Good

* The interval of the two lines are different.



* Two lines are overlapped.



20. **(End of procedure)**

Print Head Height Adjustment

Information

Necessary tools

General tools
No.1 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Print head height adjustment**

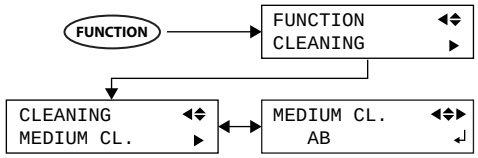
Referential time for work

Contents of work	Time
Print head height adjustment	20 min.

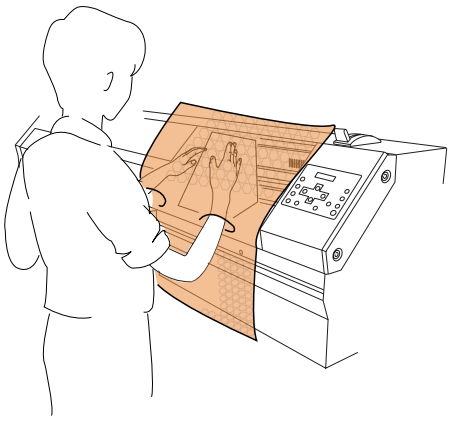
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.

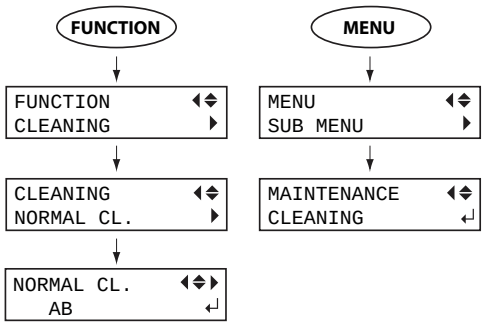


- This is to adjust the head height parallel to the table unit. This adjustment is required when the table unit is replaced. This adjustment is NOT required when you remove the table unit and replace the same one. This adjustment is NOT required when the print head is replaced.

1. **Before adjusting print head height, perform normal cleaning and manual cleaning.**

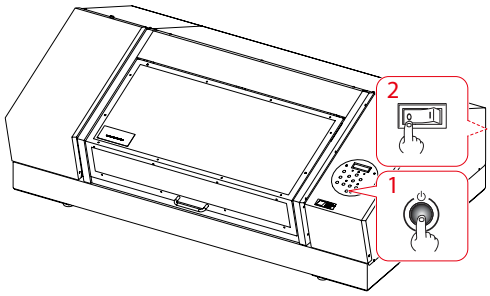
NOTE

This step is to prevent the ink around the print head from rubbing off on the table when the print head is placed on the table at step 14.

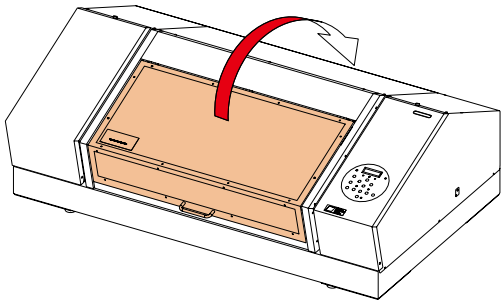


2. **Turn on the sub power, and then turn on the main power.**

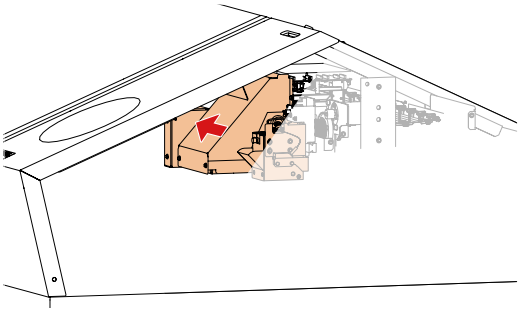
1. Sub power SW
2. Main power SW



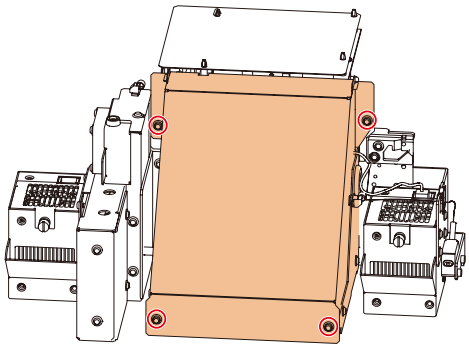
3. **Open the cover.**



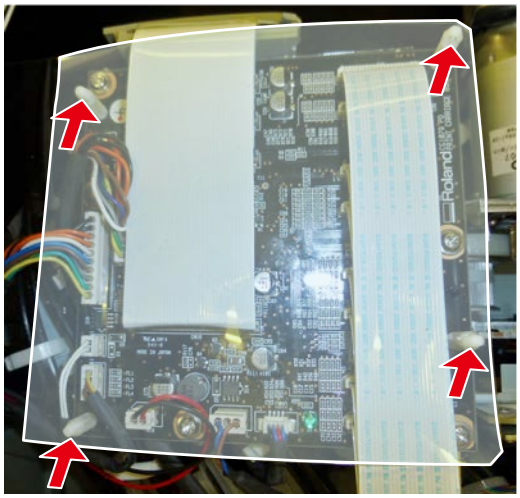
4. **Unlock the head carriage and move it slowly leftwards.**



5. **Remove four screws that secure the carriage cover.**

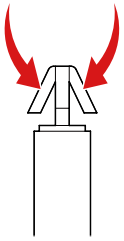


6. **Remove the carriage board cover.**

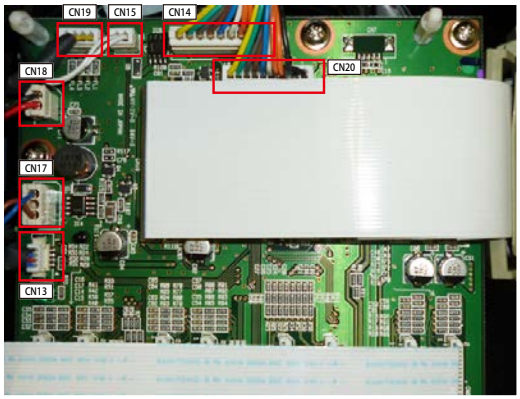


CAUTION

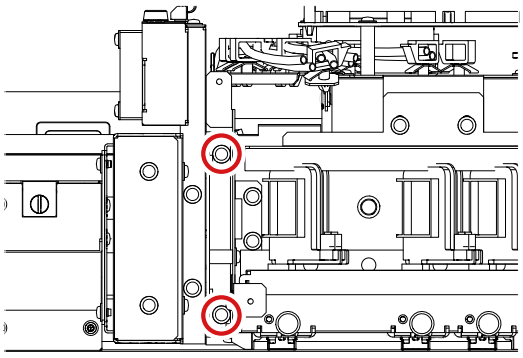
Remove the carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.

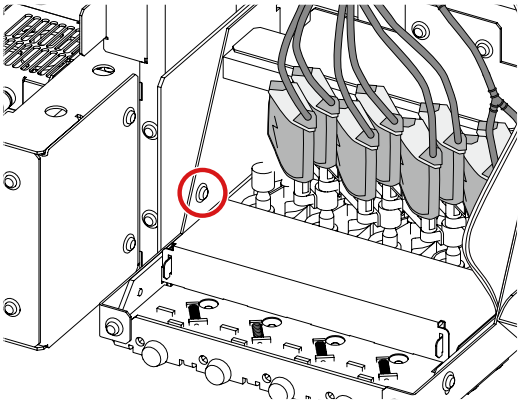


7. **Unplug the connectors from the carriage board.**

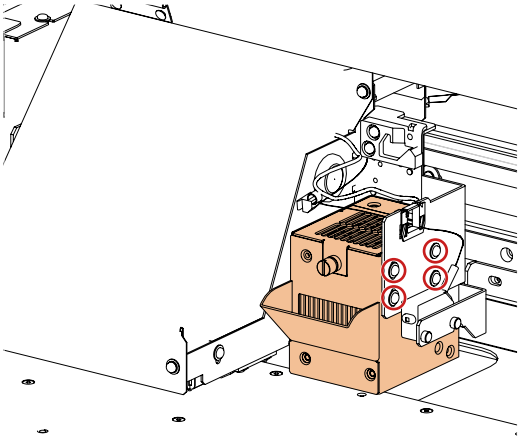


8. Remove three screws to remove the UV lamp unit together with the stay.

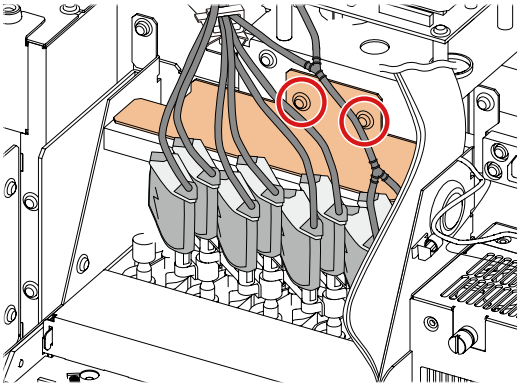




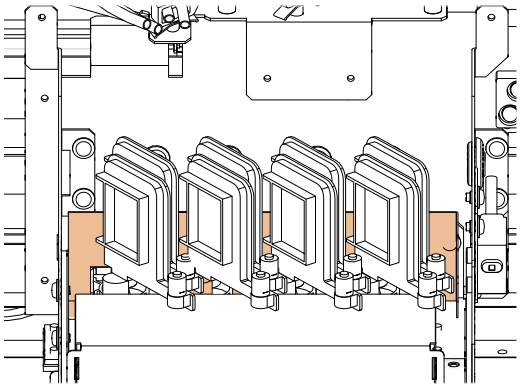
9. Remove four screws that secure the UV lamp.



10. Remove two screws that secure the damper plate.

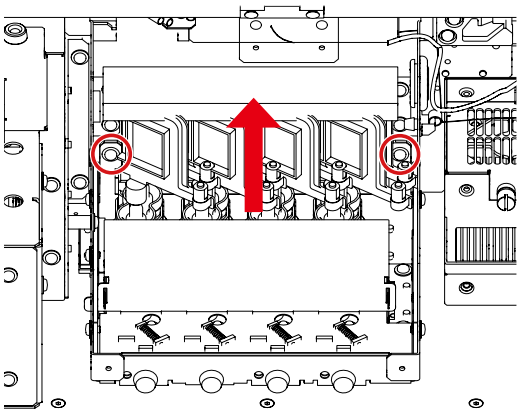


11. Remove the rear head shield.

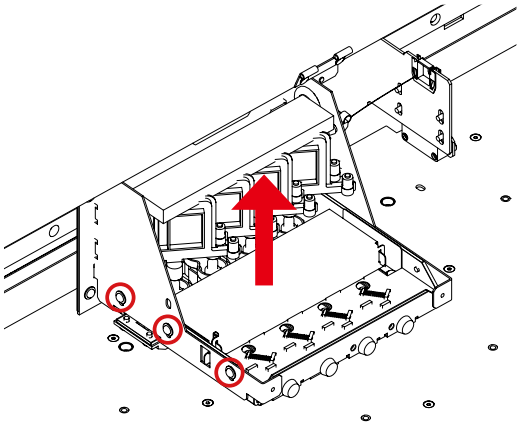


12. Loosen seven screws fixing the head carriage. Push it upward and tighten the screws again.

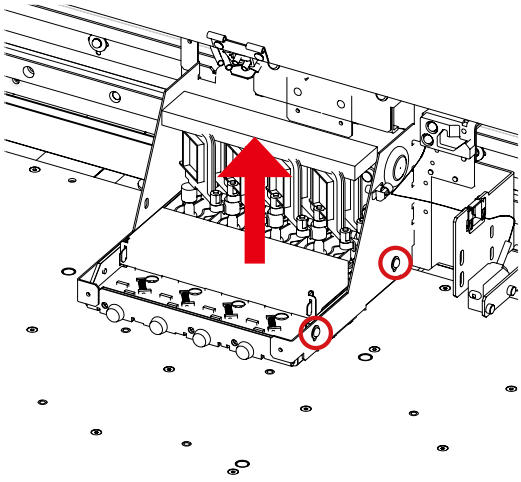
Base carriage



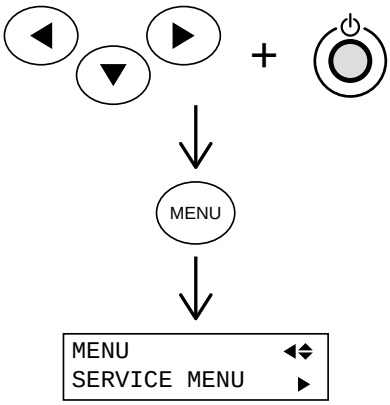
Left frame



Right frame



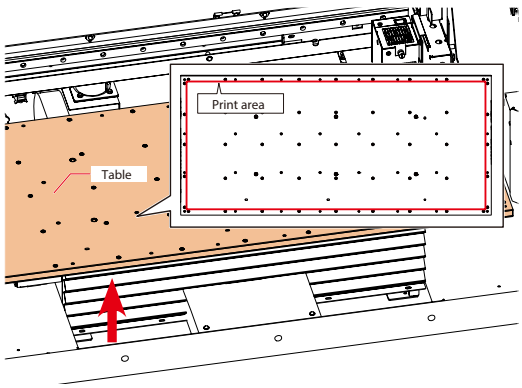
13. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



14. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] to set the height to 103.0 mm and move the table to the position which the head carriage is placed inside of the print area by pressing the [▲] [▼] Key.

CAUTION

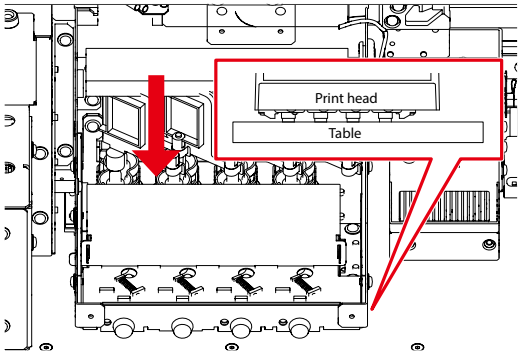
Be sure that the table unit is in a position anterior to the head gap sensor plate. When the table unit hits the plate, the table unit stops rising at 102 mm, not rising to 103 mm.



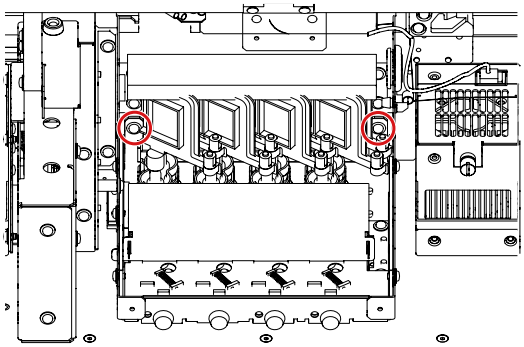
15. Loosen the screws fixing the head carriage again and push the head carrriage downward as shown in the figure so that the print head is placed on the table.

CAUTION

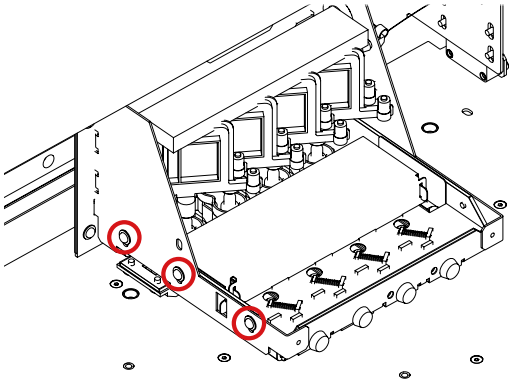
Be sure that the head carriage is inside of the print area.



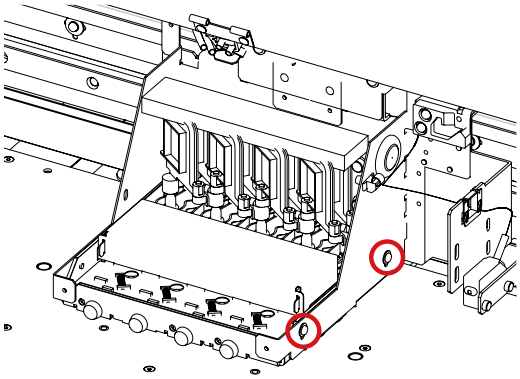
Base carriage



Left frame

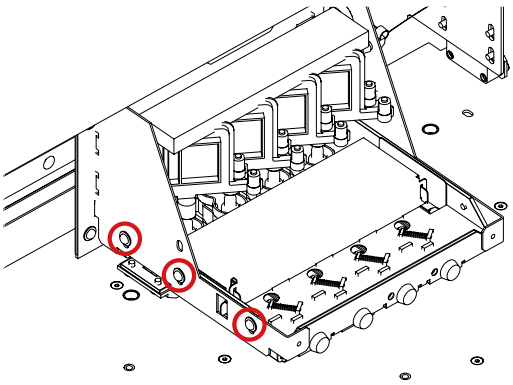


Right frame

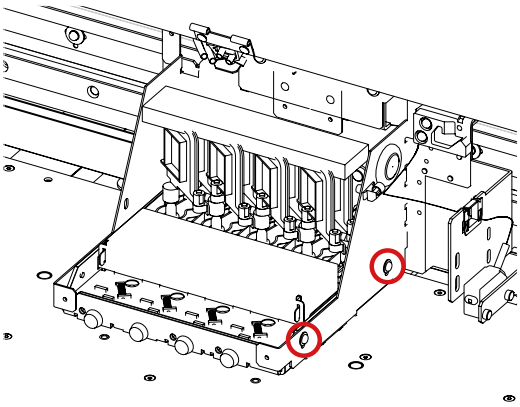


16. Fix five screws while holding the adjusted position.

Left frame

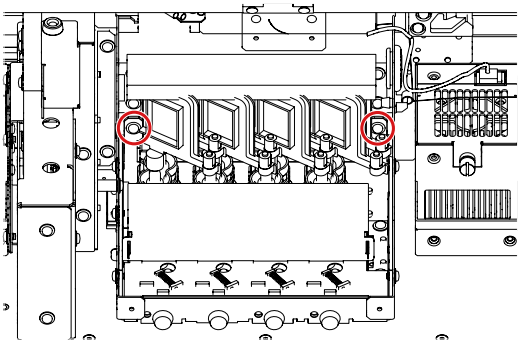


Right frame

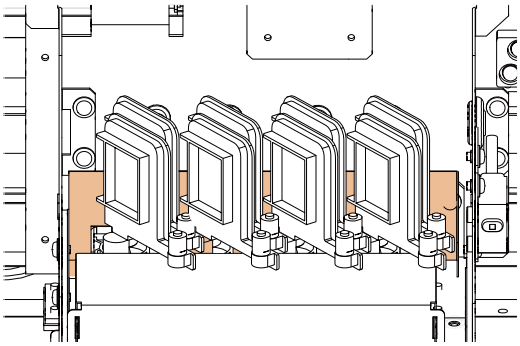


17. Fix two screws while holding the adjusted position.

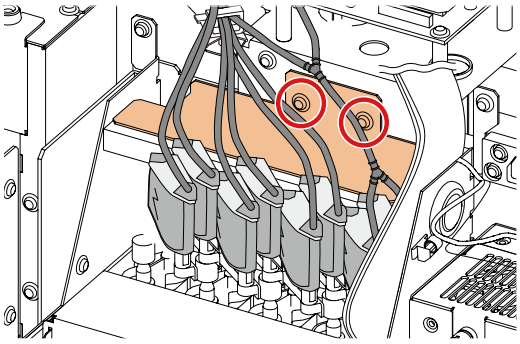
Base carriage



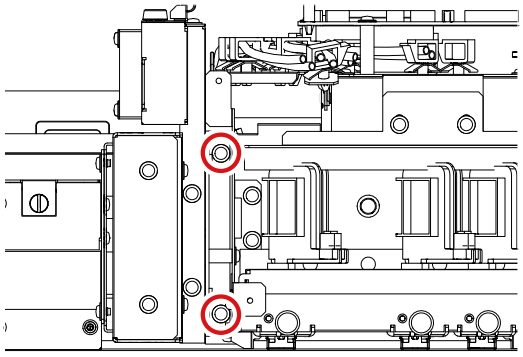
18. Attach the rear head shield.

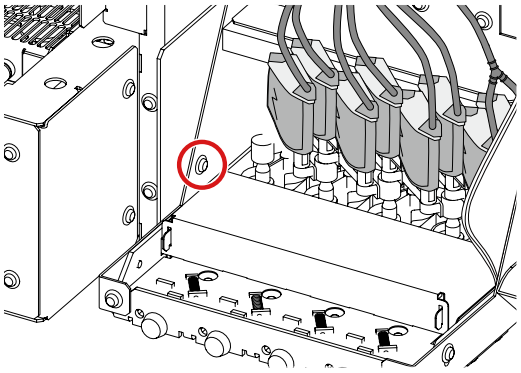


19. Tighten two screws to secure the damper plate.



20. Tighten three screws to secure the UV lamp unit together with the stay.

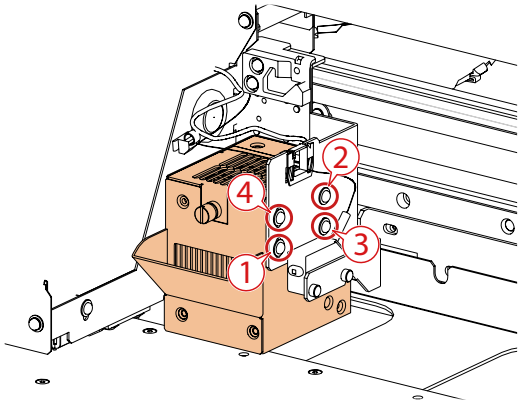




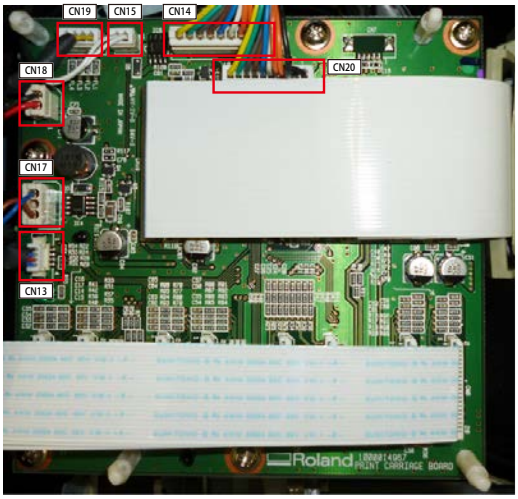
21. Tighten four screws in the order as shown below to secure the UV lamp.

CAUTION

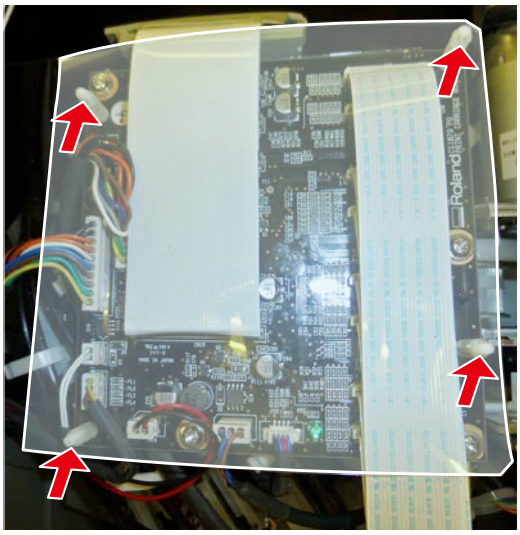
Tighten the screws while holding the UV lamp.



22. Plug the connectors.

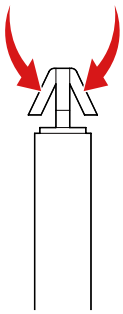


23. Fix the carriage board cover.



CAUTION

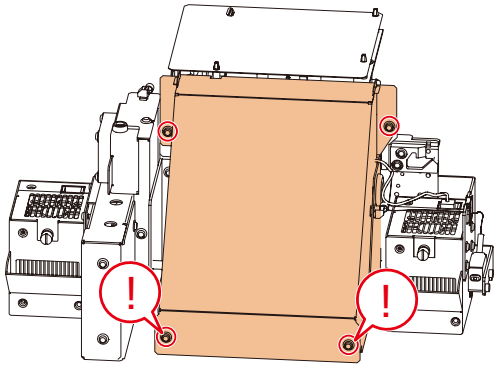
Remove the carriage board cover by pushing the part indicated by the arrows because the top part of the support is easy to break.



24. Fix the carriage cover with four screws temporarily. And tighten them fully without distorting the cover.

CAUTION

Be careful not to distort the carriage cover when tightening the two front screws. If the carriage is distorted, then the print head position may shift.



25. Perform the following adjustments:

25-1. Chapter 2 "UV Lamp Height Adjustment"

25-2. Chapter 2 "Print Head Alignment (HORIZONTAL only)"

26. (End of procedure)

UV Lamp Height Adjustment ⚠8

Information

Necessary tools

General tools
No.1 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **UV lamp height adjustment**

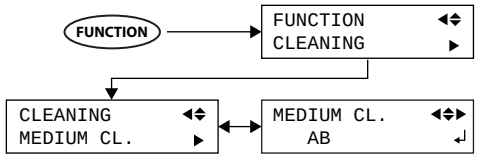
Referential time for work

Contents of work	Time
UV lamp height adjustment	30 min.

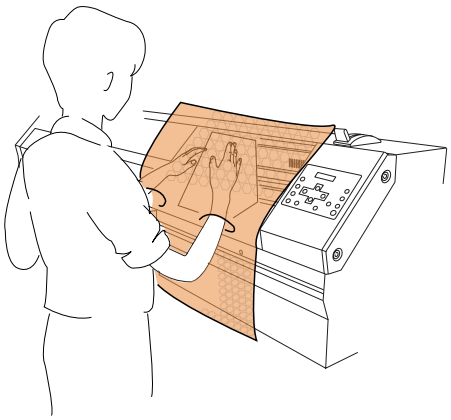
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



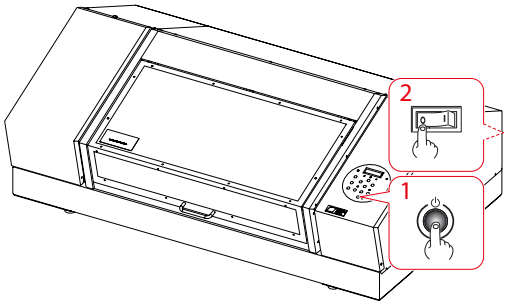
- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



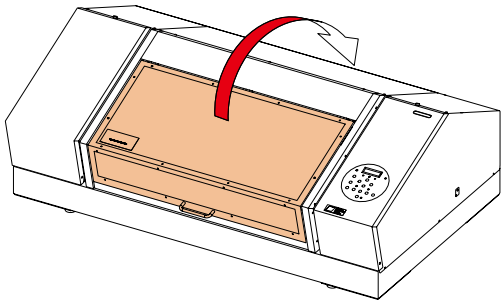
- This adjustment is required when table height adjustment or head height adjustment is performed. When the UV lamp on the left is replaced, start the procedure from step 12. When the UV lamp on the right is replaced, start the procedure from step 21.

1. **Turn off the sub power SW, and then turn off the main power SW.**

1. Sub power SW
2. Main power SW



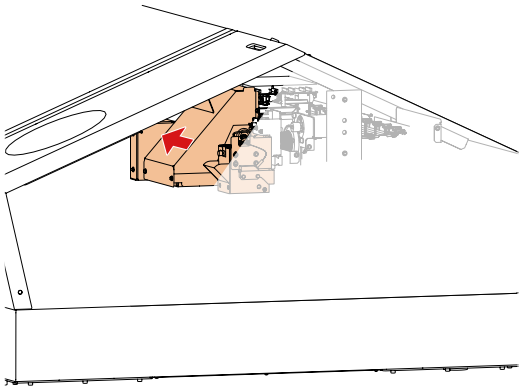
2. Open the cover.



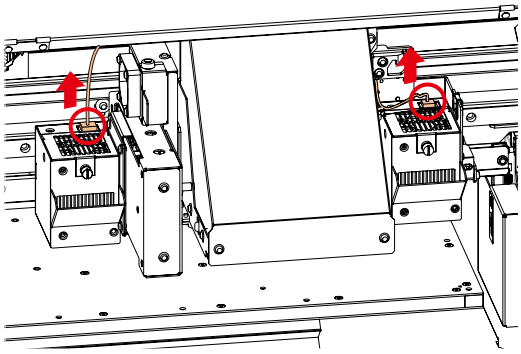
3. Unlock the head carriage and move it slowly leftwards by hand.

CAUTION

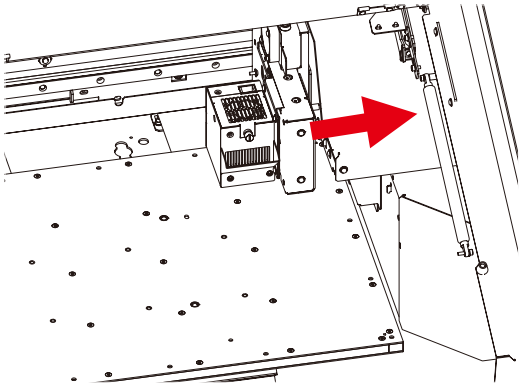
Move the head carriage to the position where the print head surface does not hit the table plate.



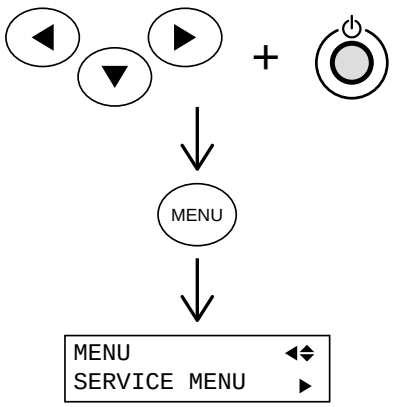
4. Unplug the connectors.



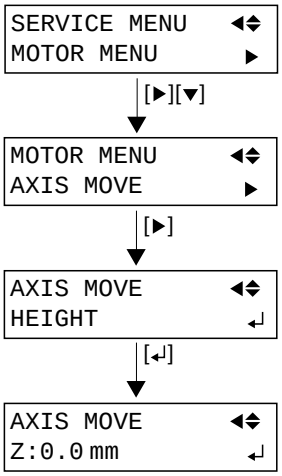
5. Move the head carriage slowly rightwards by hand.



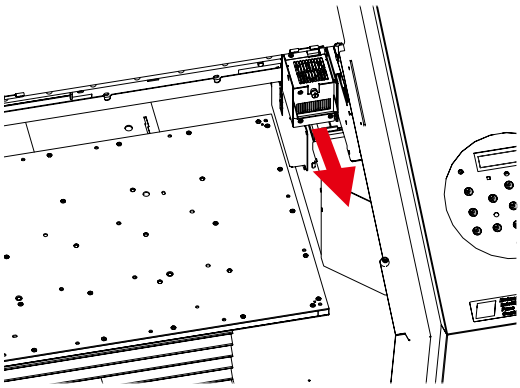
6. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



7. Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT], and press[ENTER] key.



8. Press the [▶] key to move the UV lamp frontward.

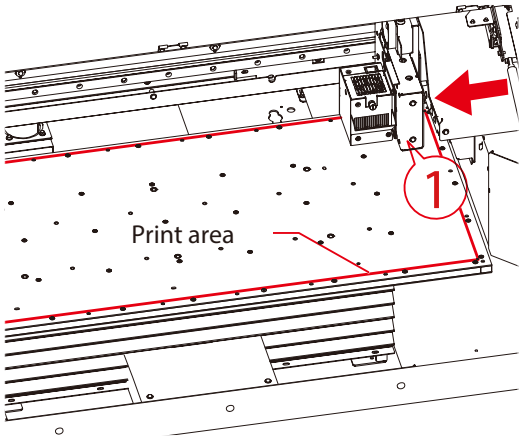


9. **Move the head cariage slowly to the position which the UV lamp slider unit is placed inside of the print area.**

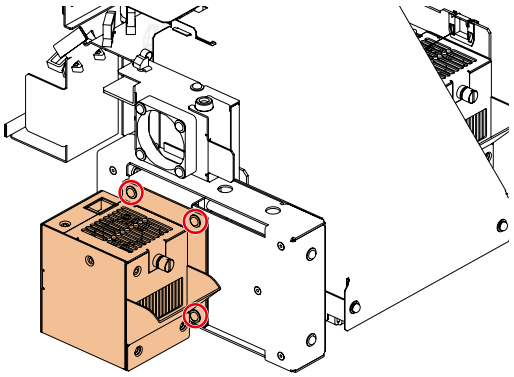
CAUTION

Move the head carriage to the position where the print head surface does not hit the table plate.

1. Slider unit



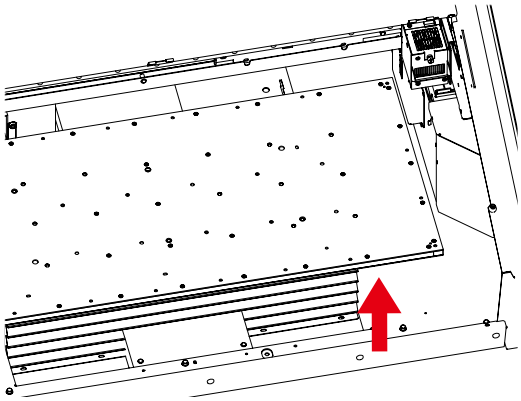
10. Remove three screws.



11. **Set the table height to [103 mm].**

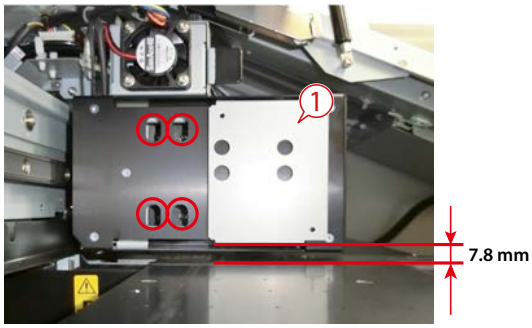
CAUTION

Be sure that the table unit is in a position anterior to the head gap sensor plate. When the table unit hits the plate, the table unit stops rising at 102 mm, not rising to 103 mm.



12. **Loosen four screws to set the gap between the bottom of the UV lamp stay and the top of the table plate to [7.8 mm]. And then tighten the screws.**

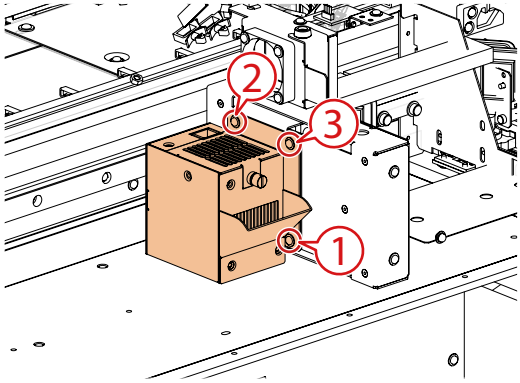
1. UV lamp stay



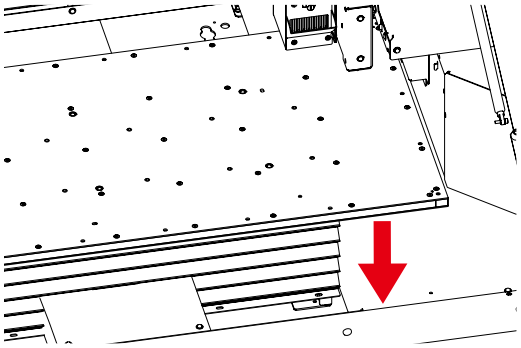
13. **Tighten three screws in the order as shown below.**

CAUTION

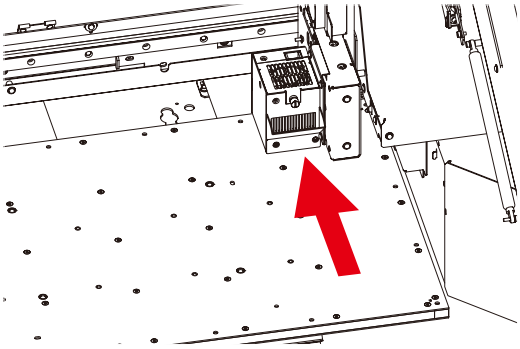
Tighten the screws while pushing the UV Lamp downward.



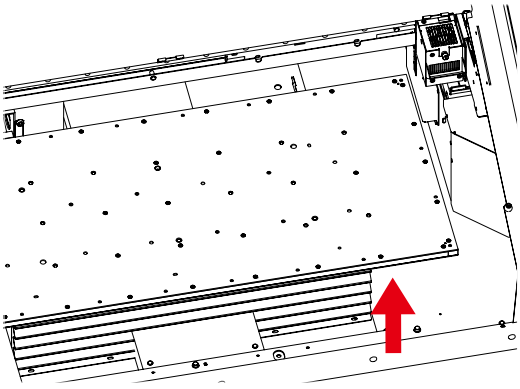
14. **Press the [TABLE DOWN] key to set the height to below [100 mm].**



15. Press the [◀] key to move the UV lamp backward.



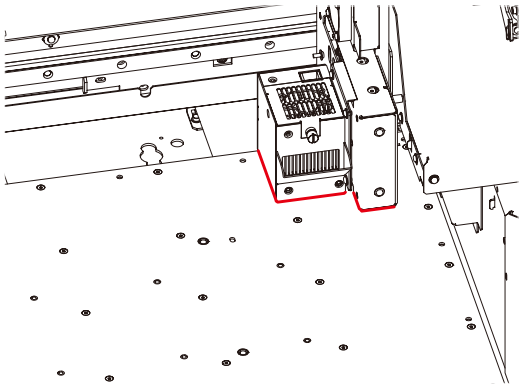
16. Press the [TABLE UP] key to set the height to [103 mm].



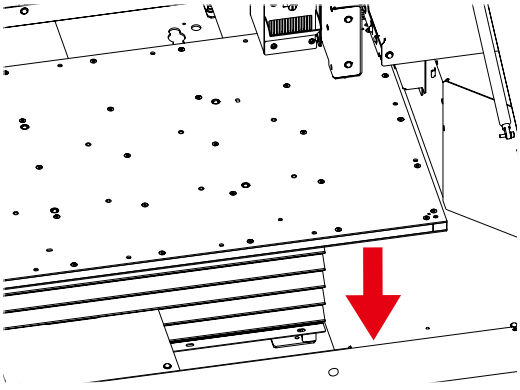
17. Check that there is no gap between the bottom of the UV lamp and the top of the table plate.

CAUTION

If there is a gap, go back to step 9 and adjust again.



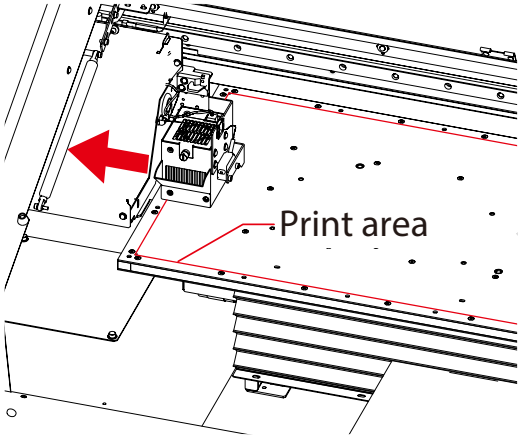
18. Press the [TABLE DOWN] key to set the height to below [100 mm].



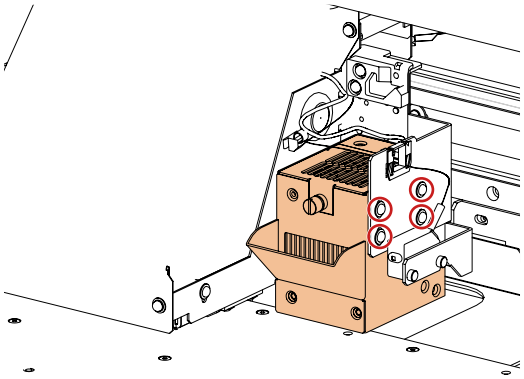
19. Move the head carriage slowly to the position which the UV lamp on the right is placed inside of the print area.

CAUTION

Move the head carriage to the position where the print head surface does not hit the table plate.



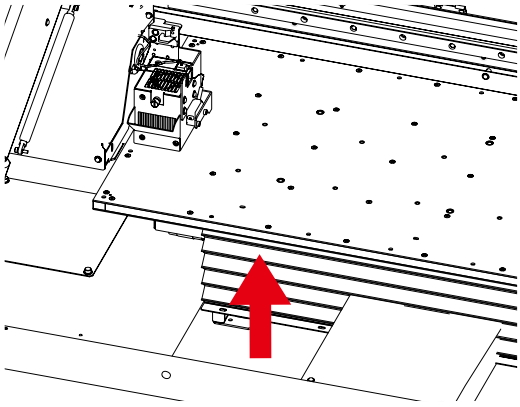
20. Loosen four screws.



21. Press the [TABLE UP] key to set the height to [103 mm].

CAUTION

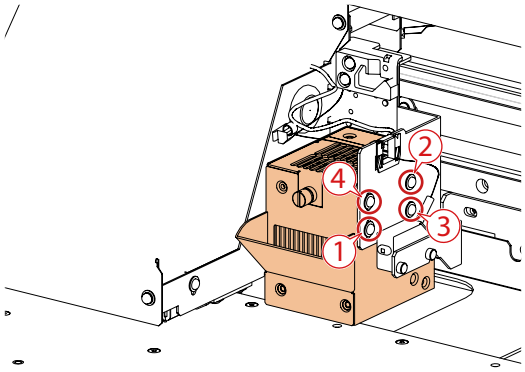
Be sure that the table unit is in a position anterior to the head gap sensor plate. When the table unit hits the plate, the table unit stops rising at 102 mm, not rising to 103 mm.



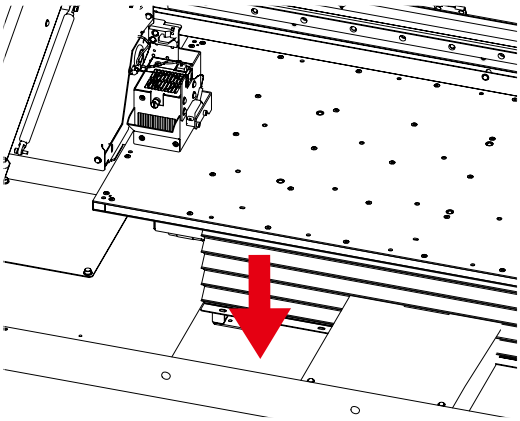
22. Tighten four screws in the order as shown below.

CAUTION

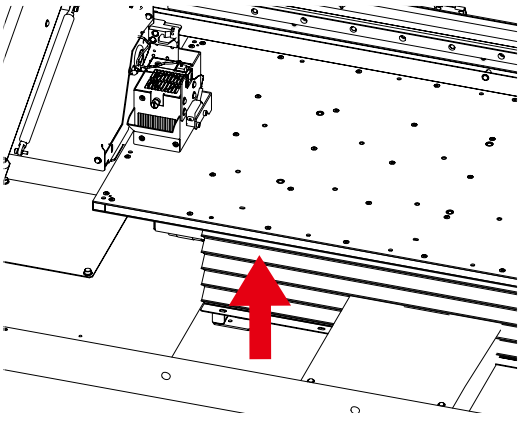
Tighten the screws while pushing the UV Lamp downward.



23. Press the [TABLE DOWN] key to set the height to below [100 mm].



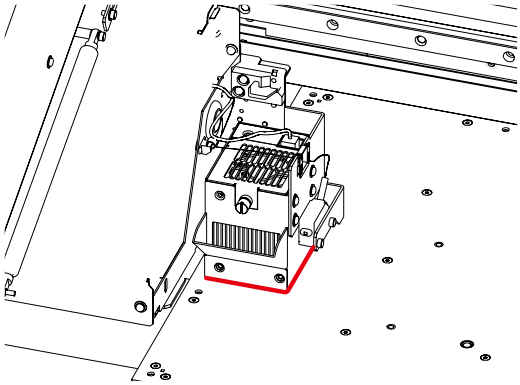
24. Press the [TABLE UP] key to set the height to [103 mm].



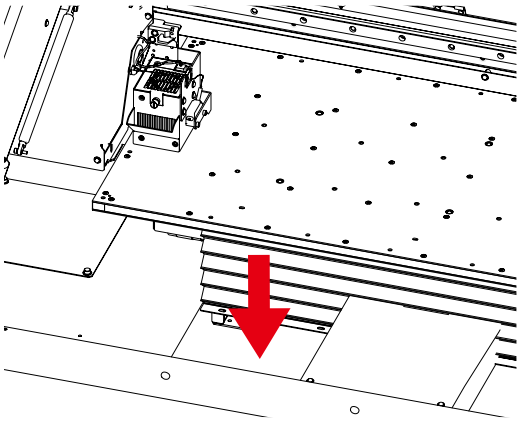
25. Check that there is no gap between the bottom of the UV lamp and the top of the table plate.

CAUTION

If there is a gap, go back to step 19 and adjust again.

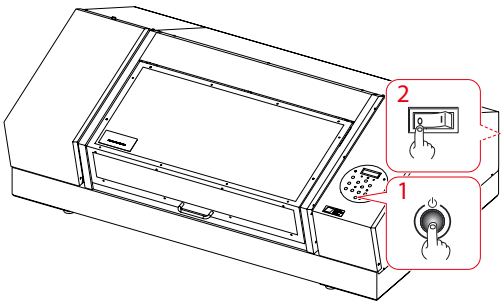


26. Press the [TABLE DOWN] key to set the height to below [100 mm].

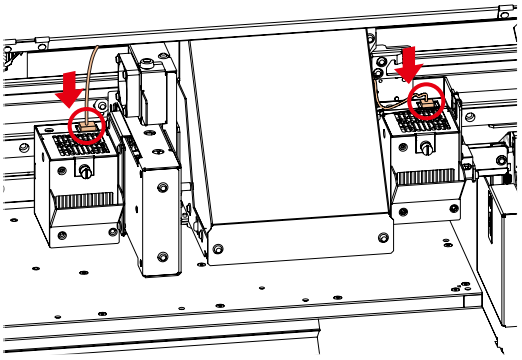


27. Turn off the sub power SW, and then turn off the main power SW.

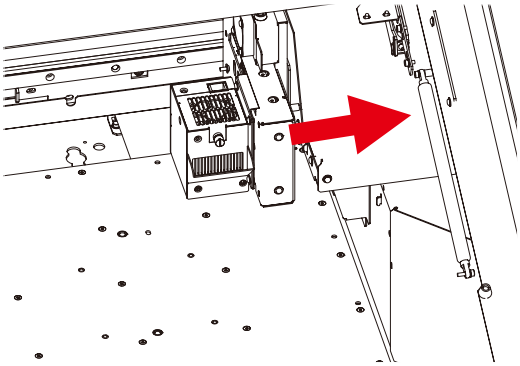
1. Sub power SW
2. Main power SW



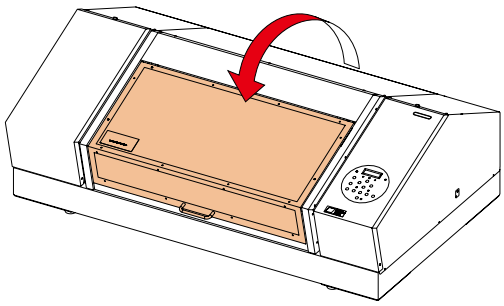
28. Plug the connectors.



29. Move the head carriage slowly rightwards.



30. Close the cover.



31. (End of procedure)

Head Gap Sensor Position Adjustment △1△3△5

Information

Necessary tools

General tools
No.1 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Head gap sensor position adjustment**

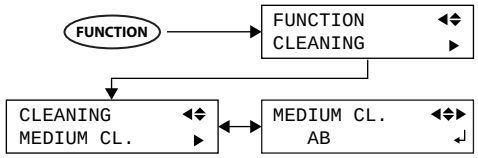
Referential time for work

Contents of work	Time
Head gap sensor position adjustment	15 min.

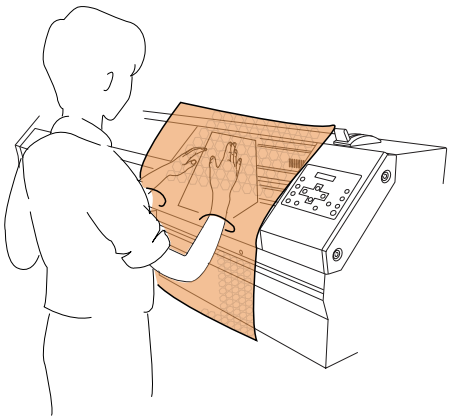
Procedure

CAUTION

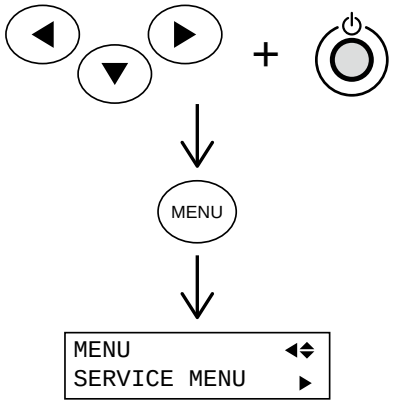
- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



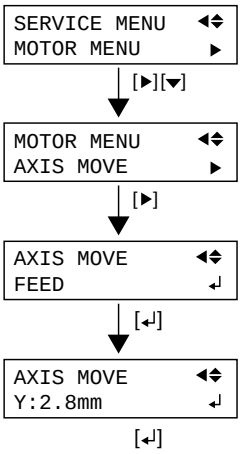
- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



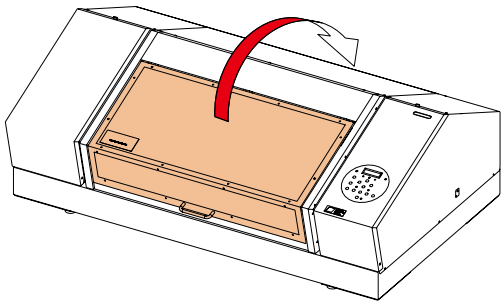
1. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**



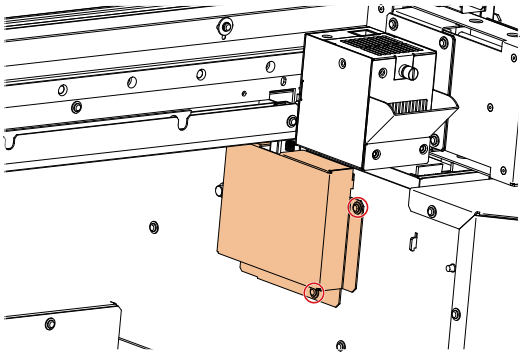
2. **Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the feed to [Y:2.8 mm] to move the table to the backward.**



3. **Open the cover.**



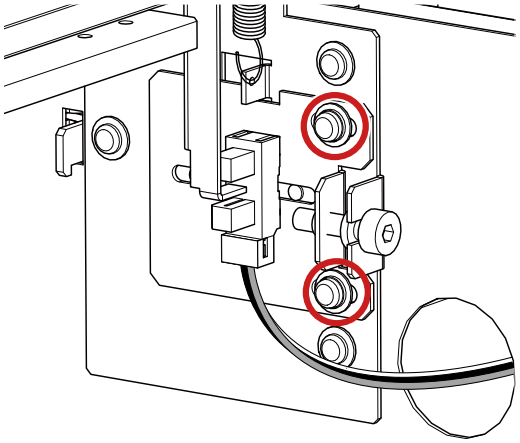
4. **Remove two screws that seucre the cover.**



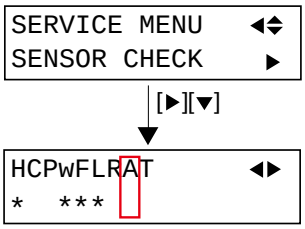
☞ For Serial No. ZDE1196 or earlier, move on to step 5 below, and for Serial No. ZDE1197 or later, move on to step 5 on page 2-69.

Serial No. ZDE1196 or earlier

5. **Loosen two screws that secure the head gap sensor.**



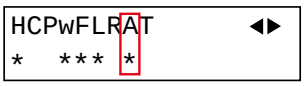
6. **Perform [SERVICE MENU] > [SENSOR CHECK] and confirm the status of sensor [A].**

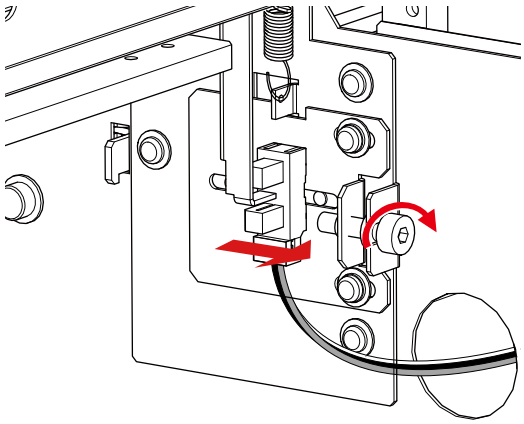


7. **Turn the screw CW until the status of sensor [A] is OFF. When the sensor is OFF, [*] mark is not displayed.**

NOTE

When you turn the screw CW, the head gap sensor moves frontward.

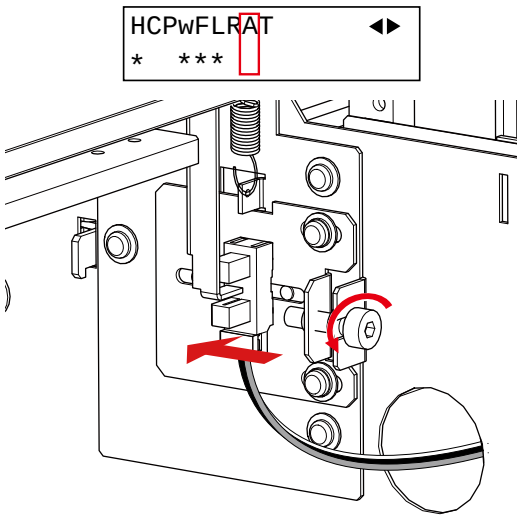




8. **Turn the adjustment screw CCW 45 degrees repeatedly until the status of sensor [A] is ON.**

NOTE

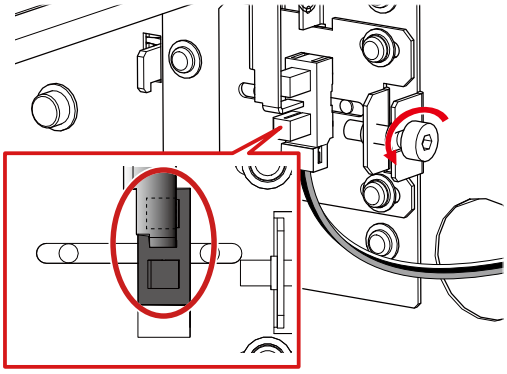
When you turn the screw CCW, the head gap sensor moves backward.



9. **Turn the adjustment screw CCW two times and a half more.**

CAUTION

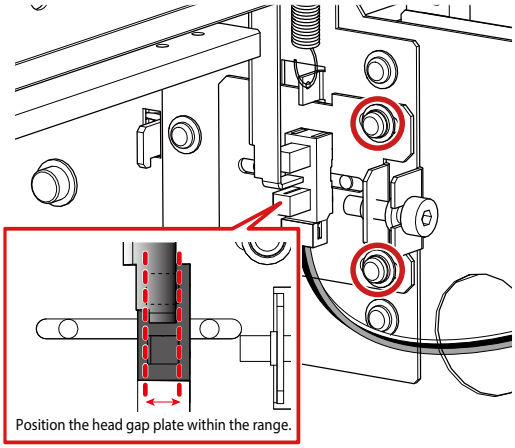
Confirm that the head gap sensor plate is center of the head gap sensor.



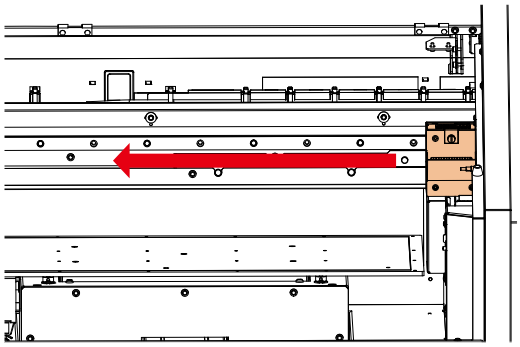
10. **Tighten two screws to secure the head gap sensor.**

CAUTION

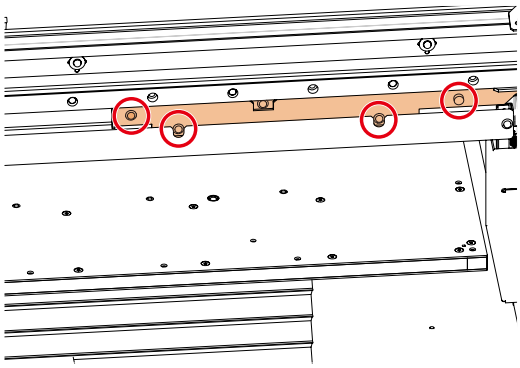
Do not position the head gap sensor plate beyond the sensor area.



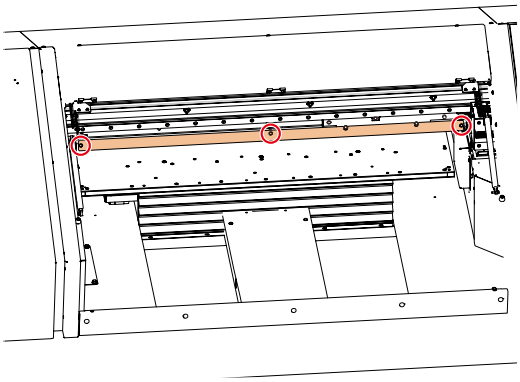
11. **Move the head carriage by hand slowly to the leftmost position of the head carriage movement.**



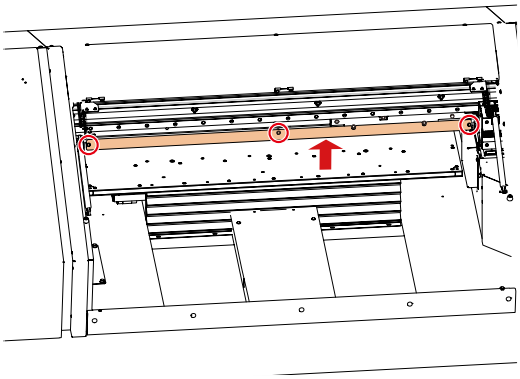
12. **Tighten four screws to secure the carriage stopper.**



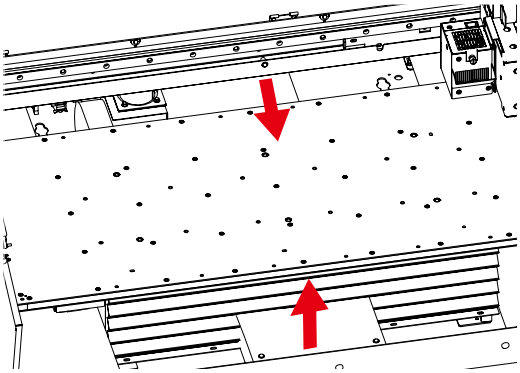
13. Loosen three screws that secure the head gap sensor plate.



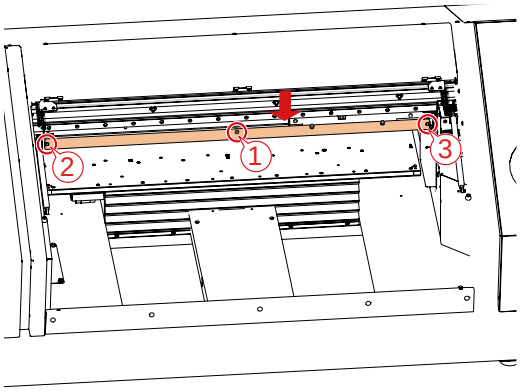
14. Tighten three screws while pushing the head gap sensor plate upward.



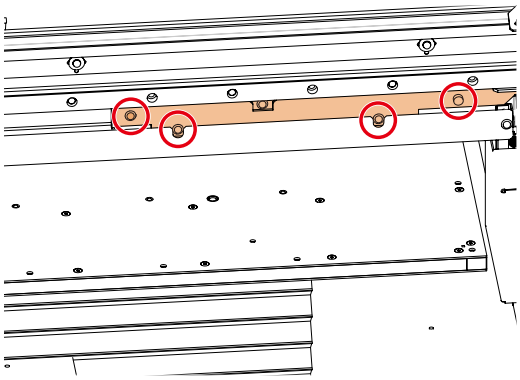
15. Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and set the Height to 102.1mm and move the Table to the center of the machine by pressing the [▲] [▼] Key.



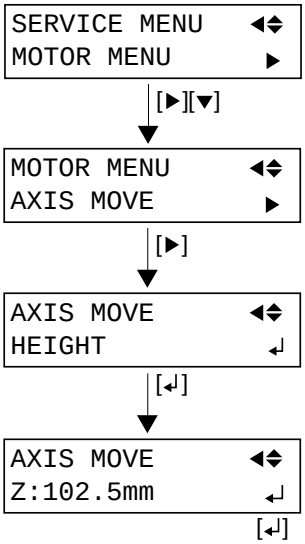
16. Loosen three screws. Then, tighten them in the order as shown below while pushing the head gap sensor plate downward.



17. Remove four screws that secure the carriage stopper.



18. Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and confirm the value which the head gap sensor turns ON.



19. **When the value of table height is between102.4 mm and 102.5 mm, and the head gap sensor plate is within the sensor area:**

☞ Move on to step 20.

When the value of table height is NOT between 102.4 mm and 102.5 mm:

☞ Adjust the height of the head gap sensor plate again. Refer to the following and calculate the acculate value of the table height when the head gap sensor plate is fixed. Then, go back to step 11.

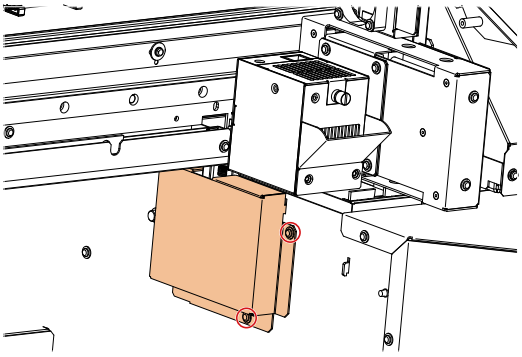
* When the value which the Head Gap Sensor turns ON (Z) is under 102.3 mm:
The acculate value=102.1 + (102.4 - Z)

* When the value which the Head Gap Sensor turns ON (Z) is over 102.6 mm:
The acculate value=102.1 - (Z - 102.4)

When the head gap sensor plate is beyond the sensor area.

☞ Go back to step 5. Do the adjustment again.

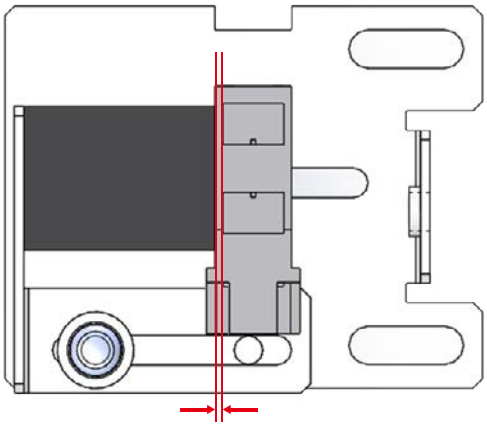
20. **Tighten two screws to secure the cover.**



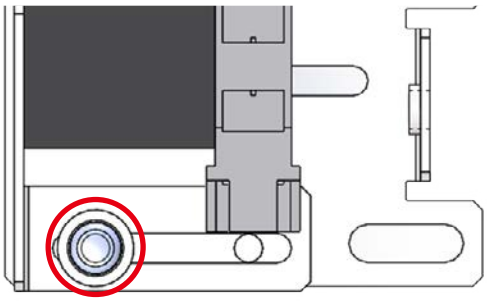
21. **(End of procedure)**

Serial No. ZDE1197 or later

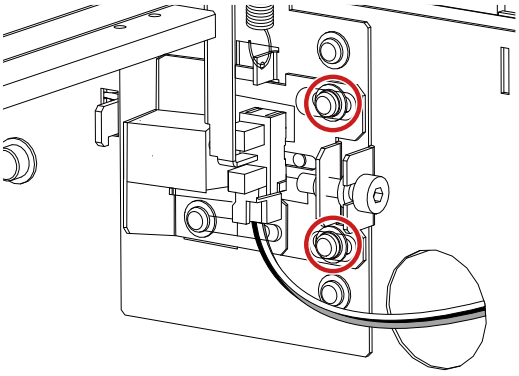
5. **Check the size of gap between the cushioning and the head gap sensor.**



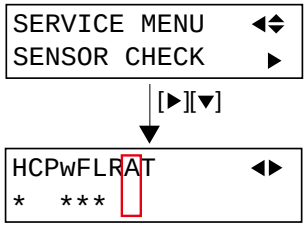
- If the size of gap is between 0 and 0.8 mm, move on to step 6.
- If the size of gap is other than between 0 and 0.8 mm, loosen the screw and adjust the position of the head gap sensor so that the size of gap becomes between 0 and 0.8 mm.



6. **Loosen two screws that secure the head gap sensor. Do not loosen the screws to the point where backlash occurs.**



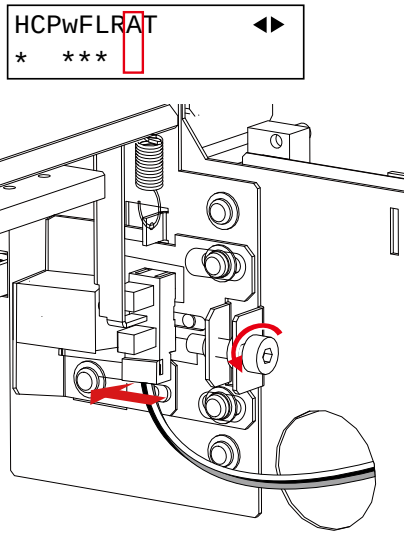
7. **Perform [SERVICE MENU] > [SENSOR CHECK] and confirm the status of sensor [A].**



8. **Flip the metal plate of head gap sensor with your fingers in order to put the sensor back to the original position, and turn the screw CCW until the status of sensor [A] is OFF. When the sensor is OFF, [*] mark is not displayed.**

NOTE

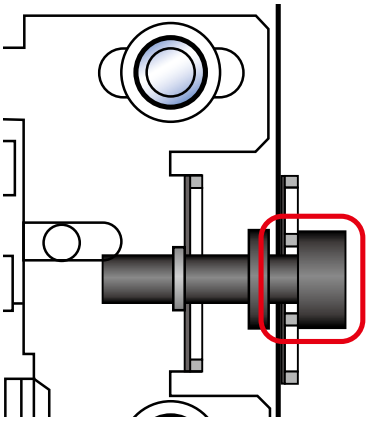
- When you turn the screw CCW, the head gap sensor moves backward.



- The screw head should be contacted with the metal plate always.

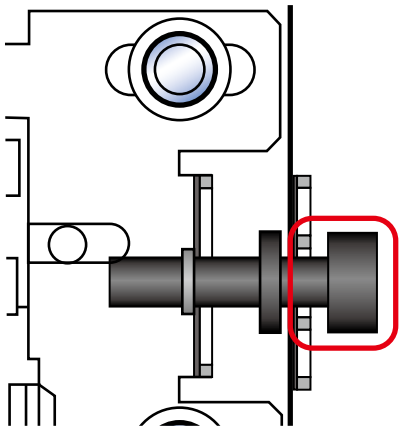
GOOD

Screw head is contacted with the metal plate.



NO GOOD

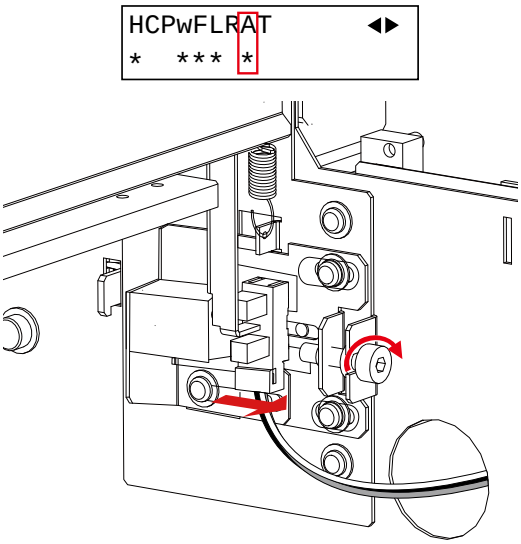
Screw head is not contacted with the metal plate.



9. **Turn the adjustment screw CW 45 degrees repeatedly until the status of sensor [A] is ON.**

NOTE

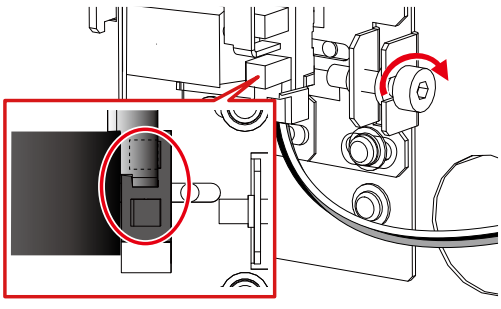
When you turn the screw CW, the head gap sensor moves frontward.



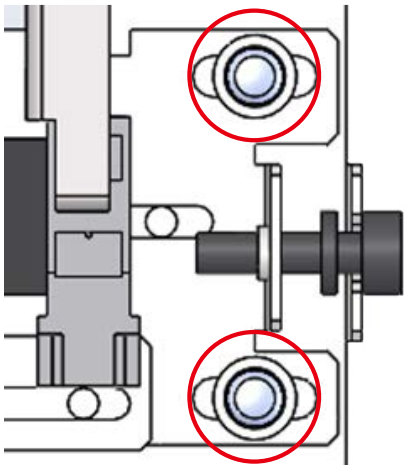
10. **Turn the adjustment screw CW three times more.**

CAUTION

Confirm that the head gap sensor plate is center of the head gap sensor.

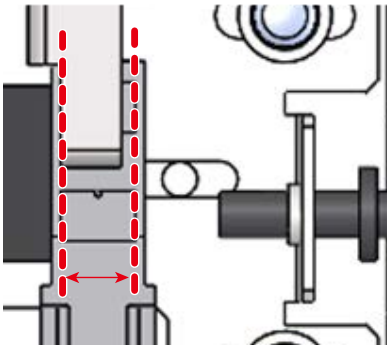


11. Tighten two screws to secure the head gap sensor.



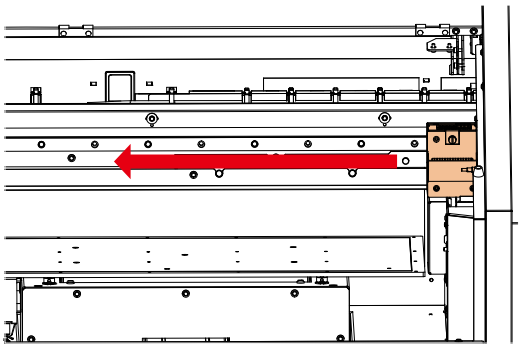
CAUTION

Do not position the head gap sensor plate beyond the sensor area.

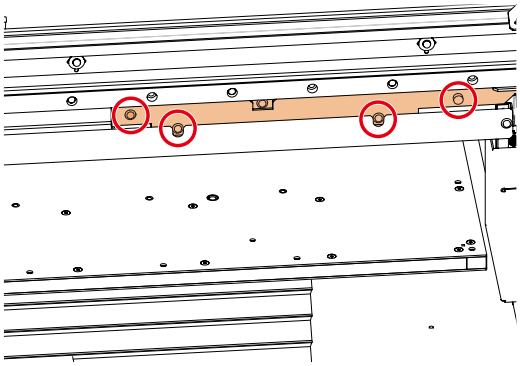


Position the head gap sensor plate within the range.

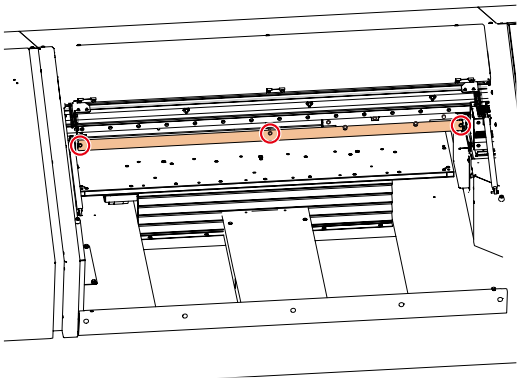
12. Move the head carriage by hand slowly to the leftmost position of the head carriage movement.



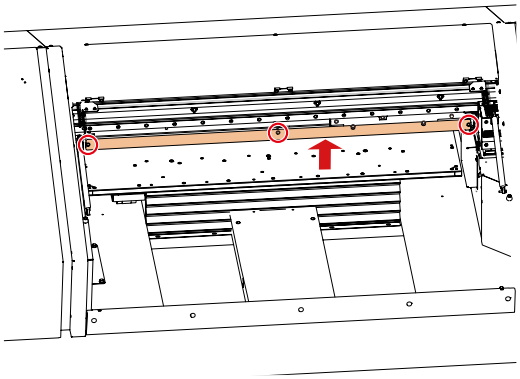
13. Tighten four screws to secure the carriage stopper.



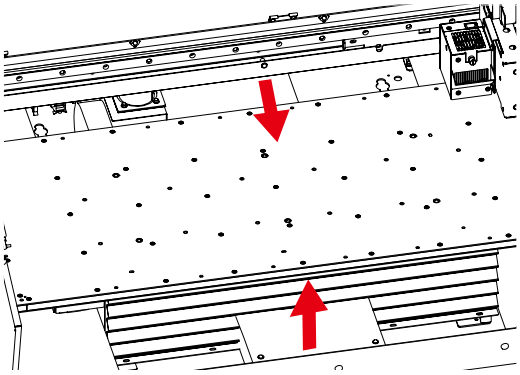
14. Loosen three screws that secure the head gap sensor plate.



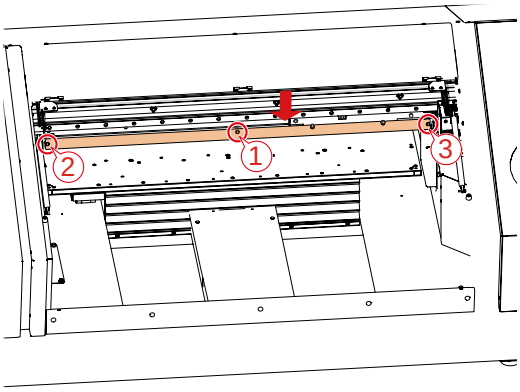
15. Tighten three screws while pushing the head gap sensor plate upward.



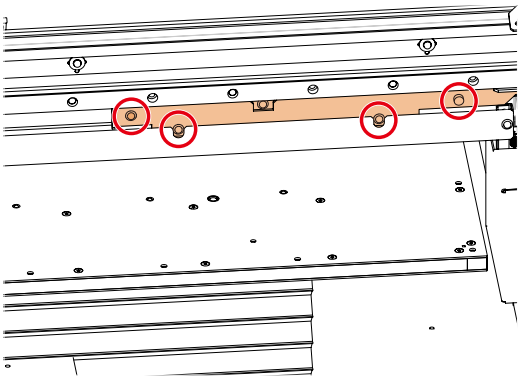
16. Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and set the Height to 102.1mm and move the Table to the center of the machine by pressing the [▲] [▼] Key.



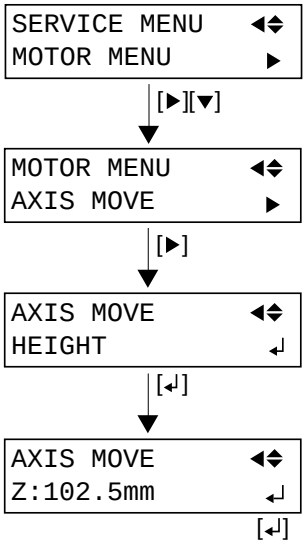
17. **Loosen three screws. Then, tighten them in the order as shown below while pushing the head gap sensor plate downward.**



18. **Remove four screws that secure the carriage stopper.**



19. **Perform [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [HEIGHT] and confirm the value which the head gap sensor turns ON.**



20. **When the value of table height is between102.4 mm and 102.5 mm, and the head gap sensor plate is within the sensor area:**

☞ Move on to step 21.

When the value of table height is NOT between 102.4 mm and 102.5 mm:

☞ Adjust the height of the head gap sensor plate again. Refer to the following and calculate the acculate value of the table height when the head gap sensor plate is fixed. Then, go back to step 11.

* When the value which the Head Gap Sensor turns ON (Z) is under 102.3 mm:

The acculate value=102.1 + (102.4 - Z)

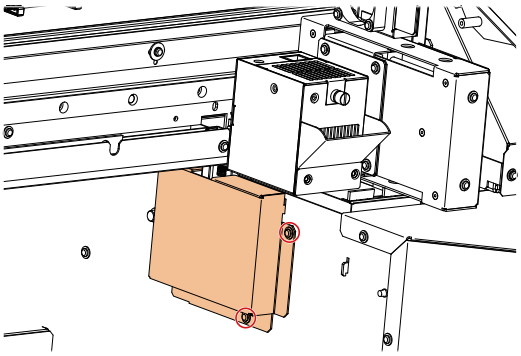
* When the value which the Head Gap Sensor turns ON (Z) is over 102.6 mm:

The acculate value=102.1 - (Z - 102.4)

When the head gap sensor plate is beyond the sensor area.

☞ Go back to step 5. , and do the adjustment again.

21. **Tighten two screws to secure the cover.**



22. **(End of procedure)**

Grease Up Maintenance ⚠14

Information

Necessary tools

General tools
No.1 Phillips screwdriver

Special tools	
6000004129	GREASE,FLOIL G-902 10ML_02
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. Grease up maintenance

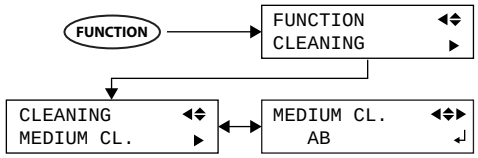
Referential time for work

Contents of work	Time
Grease up maintenance	10 min.

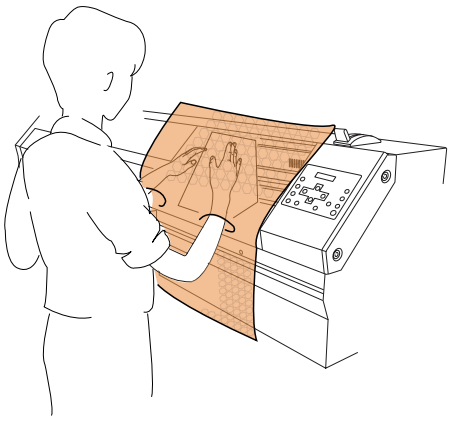
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.



- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



- This maintenance is to grease the screws of the Table UP/DOWN and the plate which fix the head gap sensor plate. This maintenance is required in every 6 months.

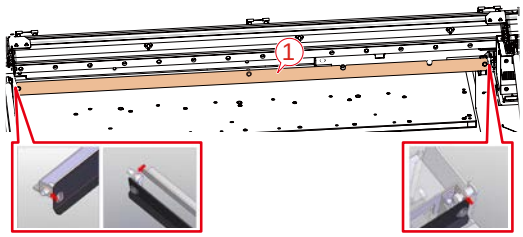
1. **Grease FLOIL G902 10ML_02 to the red-circled parts of the plate supporting the head gap sensor plate. It is the hole that the screw goes through.**

- Grease: FLOIL G-902 10ML_02
- Volume: as needed

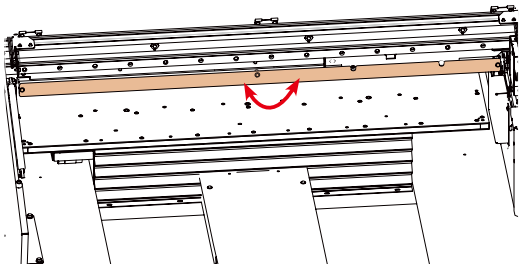
CAUTION

Use the wiry tool since the gaps between the screws and the plate are small. Loosen the screws approximately 1/2 turn to make the gresing easier.

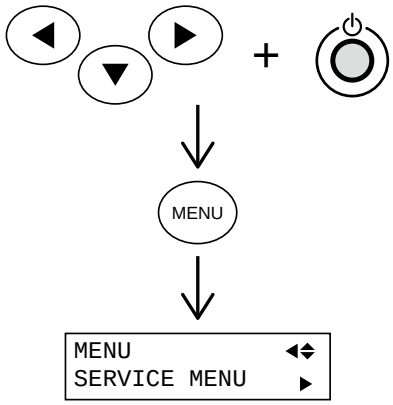
1. Head gap sensor plate



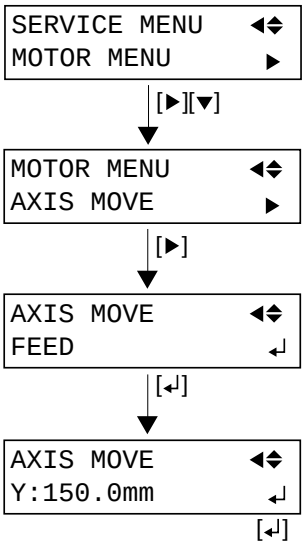
2. **Move the head gap sensor plate back and forth to check that the greased part moves smoothly.**



3. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**

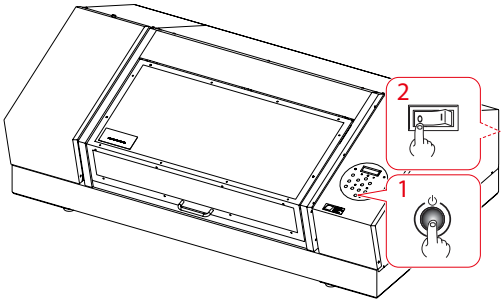


4. **Select [SERVICE MENU] > [MOTOR MENU] > [AXIS MOVE] > [FEED] and set the feed to [150.0 mm].**

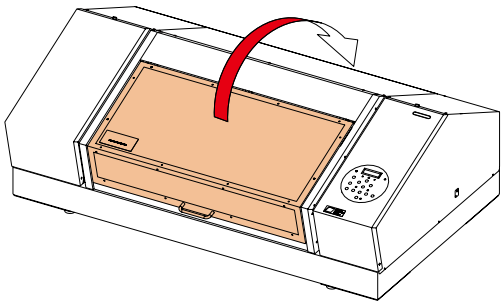


5. **Turn off the sub power SW, and then turn off the main power SW.**

1. Sub power SW
2. Main power SW

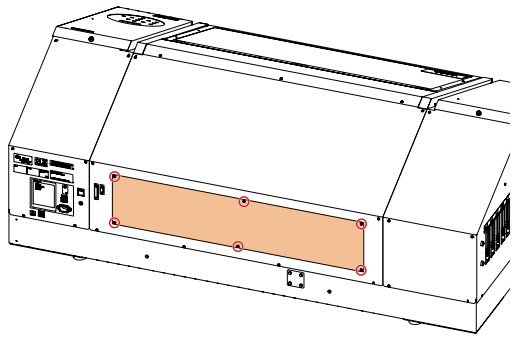


6. **Open the cover.**

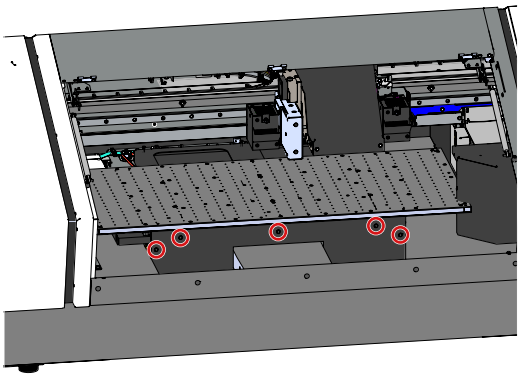


7. Remove six screws that secure the plate.

Rear view



8. Remove four screws that secure the front cover of the table unit.



9. Apply grease to Table unit UP/DOWN screws (4 screws) and 2 shafts.

- Grease: GREASE,FLOIL G-902 10ML_02
- Volume: as needed

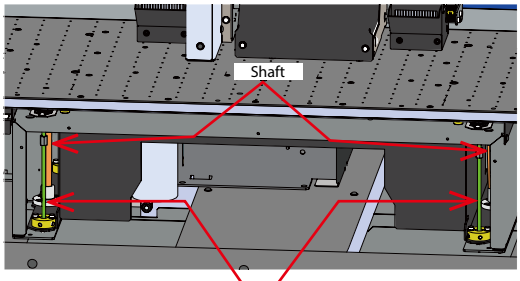
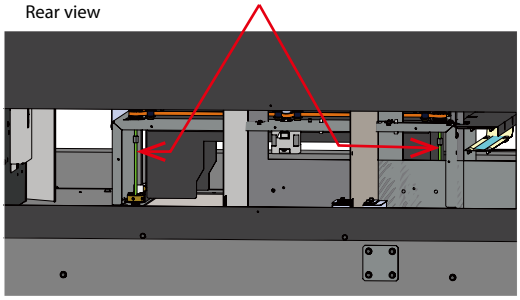
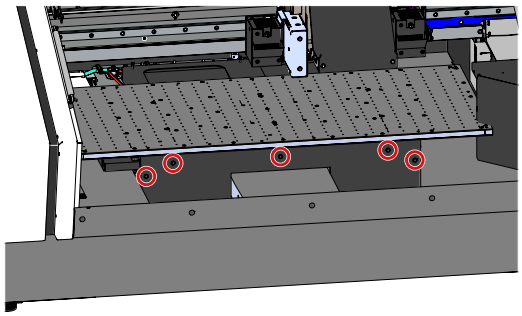


Table unit UP/DOWN screw

Rear view

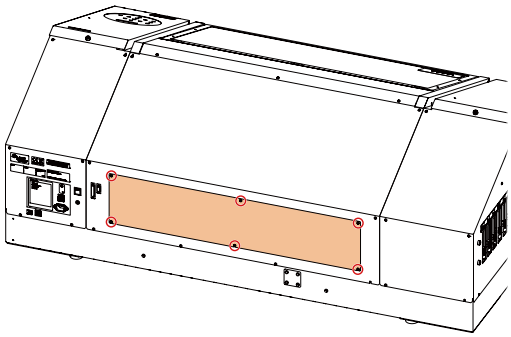


10. Tighten four screws to secure the front cover of the table unit.

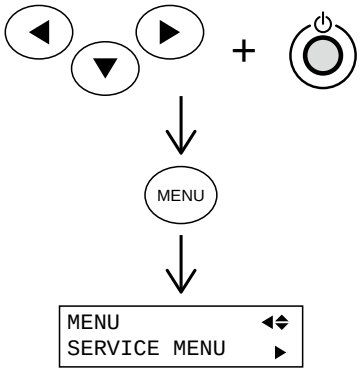


11. Tighten six screws to secure the plate.

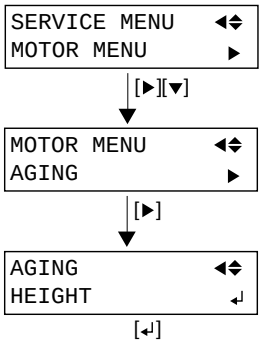
Rear view



12. Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.



13. Perform [SERVICE MENU] > [MOTOR MENU] > [AGING] > [HEIGHT].



14. (End of procedure)

Front Cover Sensor Adjustment

Information

Necessary tools

General tools
No.1 Phillips screwdriver

Special tools	
1000005829	TOOL,VINYL YE UV RESISTANT ST-113

Workflow

1. **Front cover sensor adjustment**

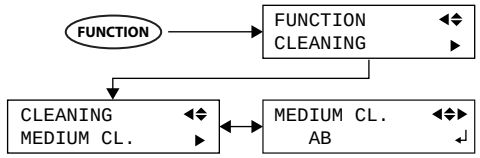
Referential time for work

Contents of work	Time
Front cover sensor adjustment	15 min.

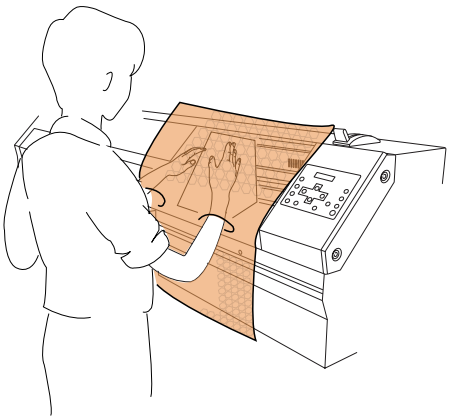
Procedure

CAUTION

- To prevent ink from hardening, perform medium cleaning if 20 minutes passes.

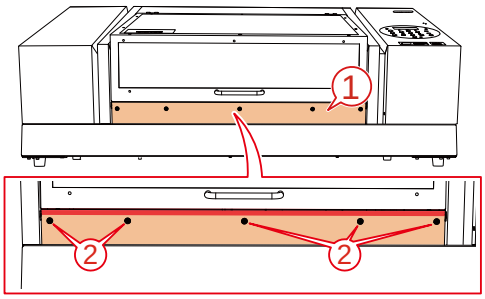


- Always use the UV protection sheet during this adjustment, or ink will harden and clog inside the ink line.



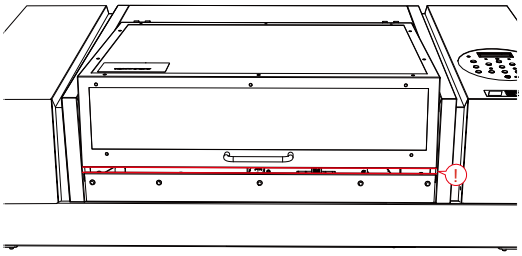
1. **Confirm that the front cover is set in the right place by checking the following points. If the front cover is not in the right place, adjust position of the front cover.**

1. Under cover
2. Front cover cusions

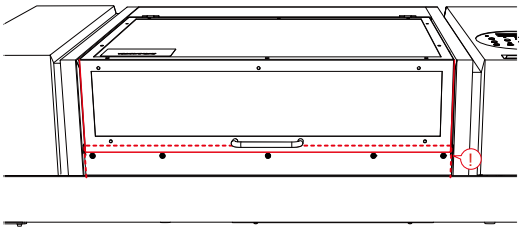


No Good

There is a gap between the front cover and the under cover.

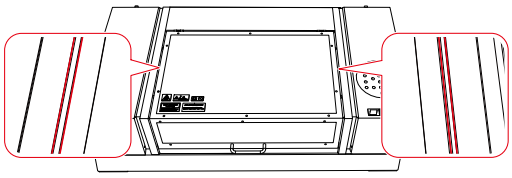


The front cover lies upon the upper surface of the front cover cusions.

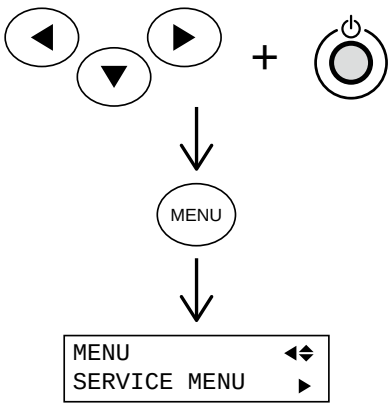


CAUTION

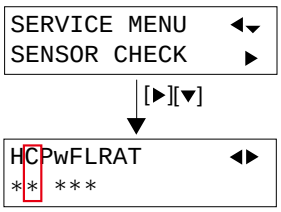
Be sure that the gap between the front cover and the frame is parallel.



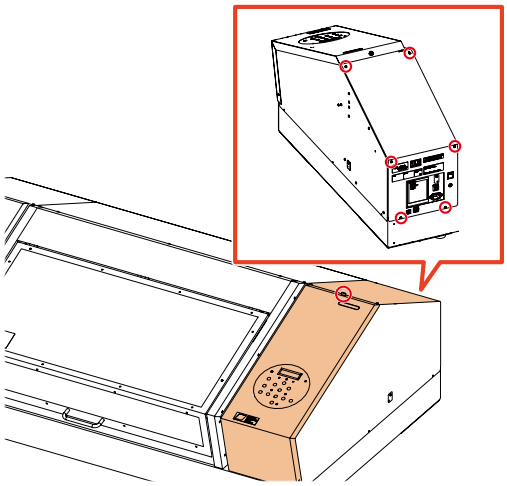
2. **Turn on the main power SW, and then turn on the sub power SW while pressing [◀] [▼] [▶] keys to enter the service mode.**



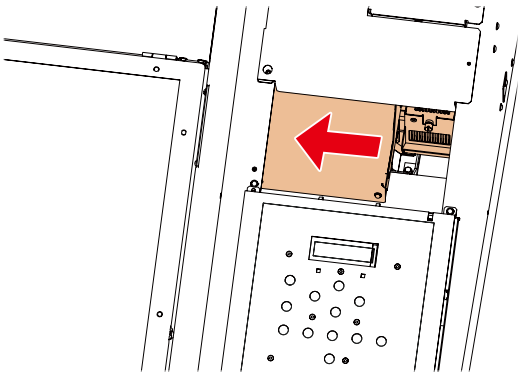
3. **Perform [SERVICE MENU] > [SENSOR CHECK] and confirm the status of sensor [C].**



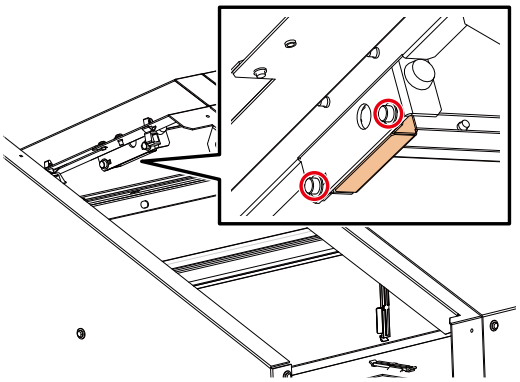
4. **Remove seven screws that secure the covers.**



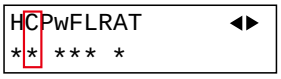
5. **Unlock the head carriage and move it slowly leftwards by hand.**

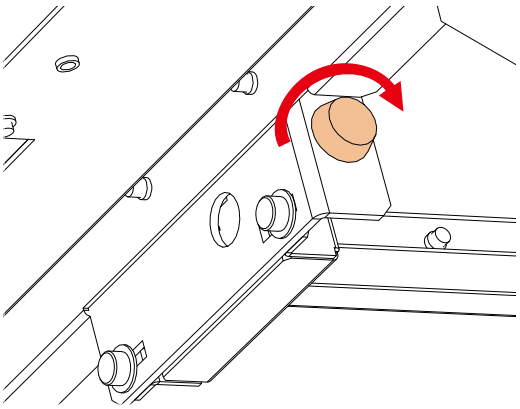


6. Loosen two screws fixing the front cover sensor half a turn.

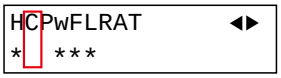


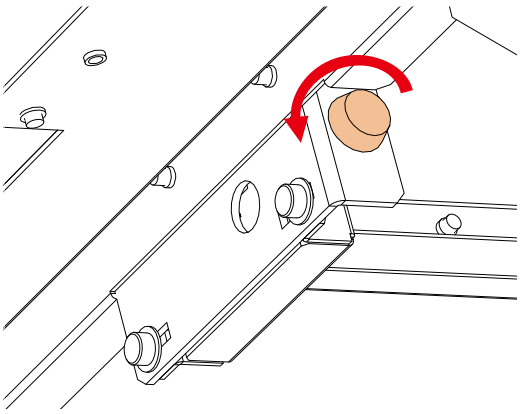
7. Tighten the screw CW until the status of the sensor [C] is ON. When the sensor is ON, [*] mark is displayed.



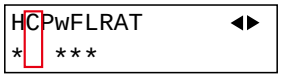


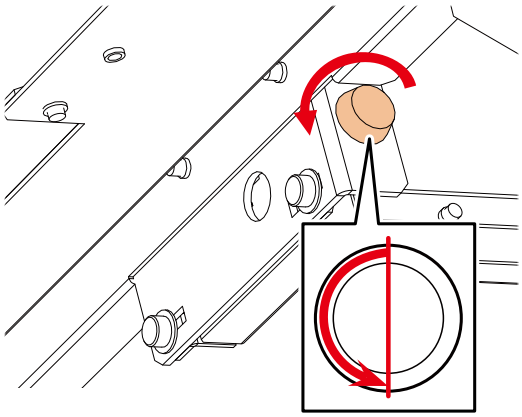
8. Loosen the screw slowly until the status of sensor [C] is OFF.



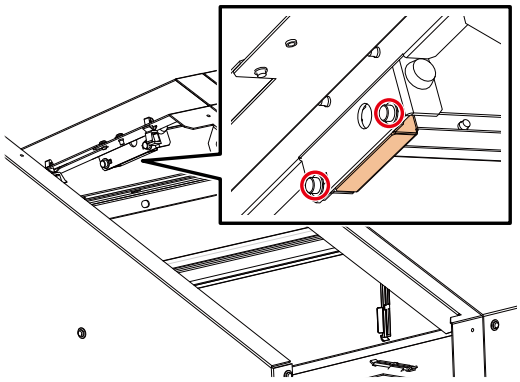


9. Loosen the screw CCW half a turn more.



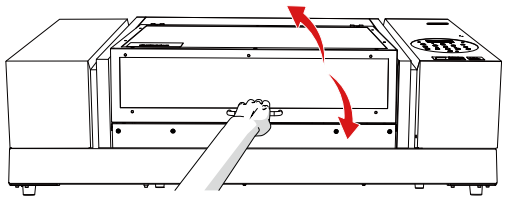


10. Tighten two screws that secure the front cover sensor.

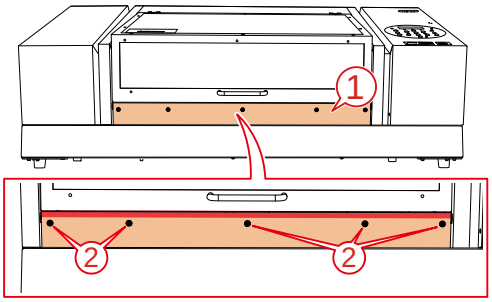


Confirming the Position of the Front Cover Sensor

11. **Open the front cover and confirm the position of the lower edge of the front cover when the front cover sensor clicks. Then, close the front cover and comfirm the position again. The position of the front cover is proper when both positions are between the top edge of the under cover and the top edge of the front cover cushions.**

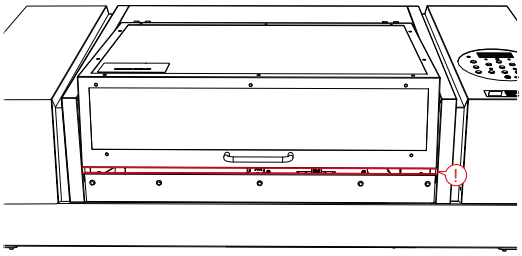


1. Under cover
2. Front cover cushions

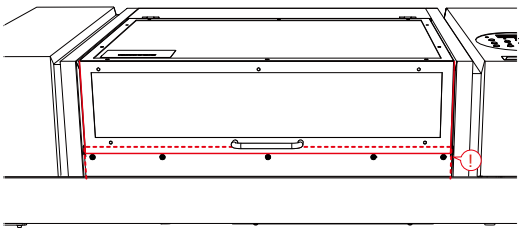


No Good

There is a gap between the front cover and the under cover.

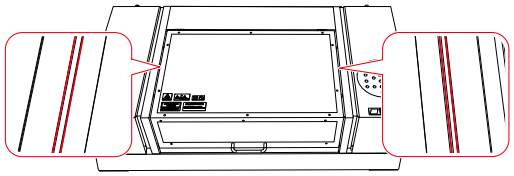


The front cover lies upon the upper surface of the front cover cusions.



CAUTION

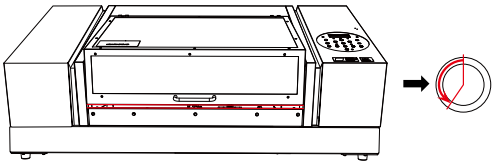
Be sure that the gap between the front cover and the frame is parallel.



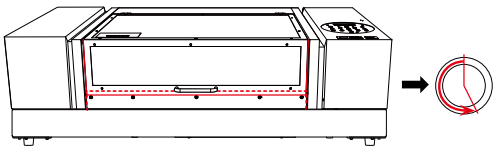
11-1. If any of these positions are higher than the under cover or lower than top edge of the front cover cushions, adjust it again.

☞ Change the degree of adjustment screw rotation depending on the position of the front cover when the front cover sensor clicks.

- When the lower edge of front cover is higher than the under cover, loosen the adjustment screw less than half.



- When the lower edge of front cover is lower than top edge of the front cover cushions, loosen the adjustment screw more than a half.



12. **(End of procedure)**

Chapter 3 Electrical Parts

Wiring Map 3-2

Main Board 3-3
Arrangement Diagram (Component Side) . . . 3-3
Arrangement Diagram (Soldering Side) 3-4
Circuit Diagram. 3-5

Servo Board 3-13
Arrangement Diagram (Component Side) . . 3-13
Arrangement Diagram (Soldering Side) 3-14
Circuit Diagram. 3-15

Print Carriage Board 3-19
Arrangement Diagram (Component Side) . . 3-19
Circuit Diagram. 3-20

Signal Junction Board 3-22
Arrangement Diagram (Component Side) . . 3-22
Circuit Diagram. 3-23

Signal Junction Board 1 3-27
Arrangement Diagram (Component Side) . . 3-27
Circuit Diagram. 3-27

Signal Junction Board 2 3-28
Arrangement Diagram (Component Side) . . 3-28
Circuit Diagram. 3-28

DC Junction Board 3-29
Arrangement Diagram (Component Side) . . 3-29
Circuit Diagram. 3-29

AC Junction Board 3-30
Arrangement Diagram (Component Side) . . 3-30
Circuit Diagram. 3-30

Sensor Junction Board 3-31
Arrangement Diagram (Component Side) . . 3-31
Circuit Diagram. 3-31

EXT Junction Board 1 3-32
Arrangement Diagram (Component Side) . . 3-32
Circuit Diagram. 3-32

EXT Junction Board 2 3-33
Arrangement Diagram (Component Side) . . 3-33
Circuit Diagram. 3-33

EXT I/F Board 3-34
Arrangement Diagram (Component Side) . . 3-34
Circuit Diagram. 3-35

Panel Board 3-36
Arrangement Diagram (Component Side) . . 3-36
Circuit Diagram. 3-37

Tower Light Board 3-38
Arrangement Diagram (Component Side) . . 3-38
Circuit Diagram. 3-38

LED Lamp Board 3-39
Arrangement Diagram (Component Side) . . 3-39
Circuit Diagram. 3-39

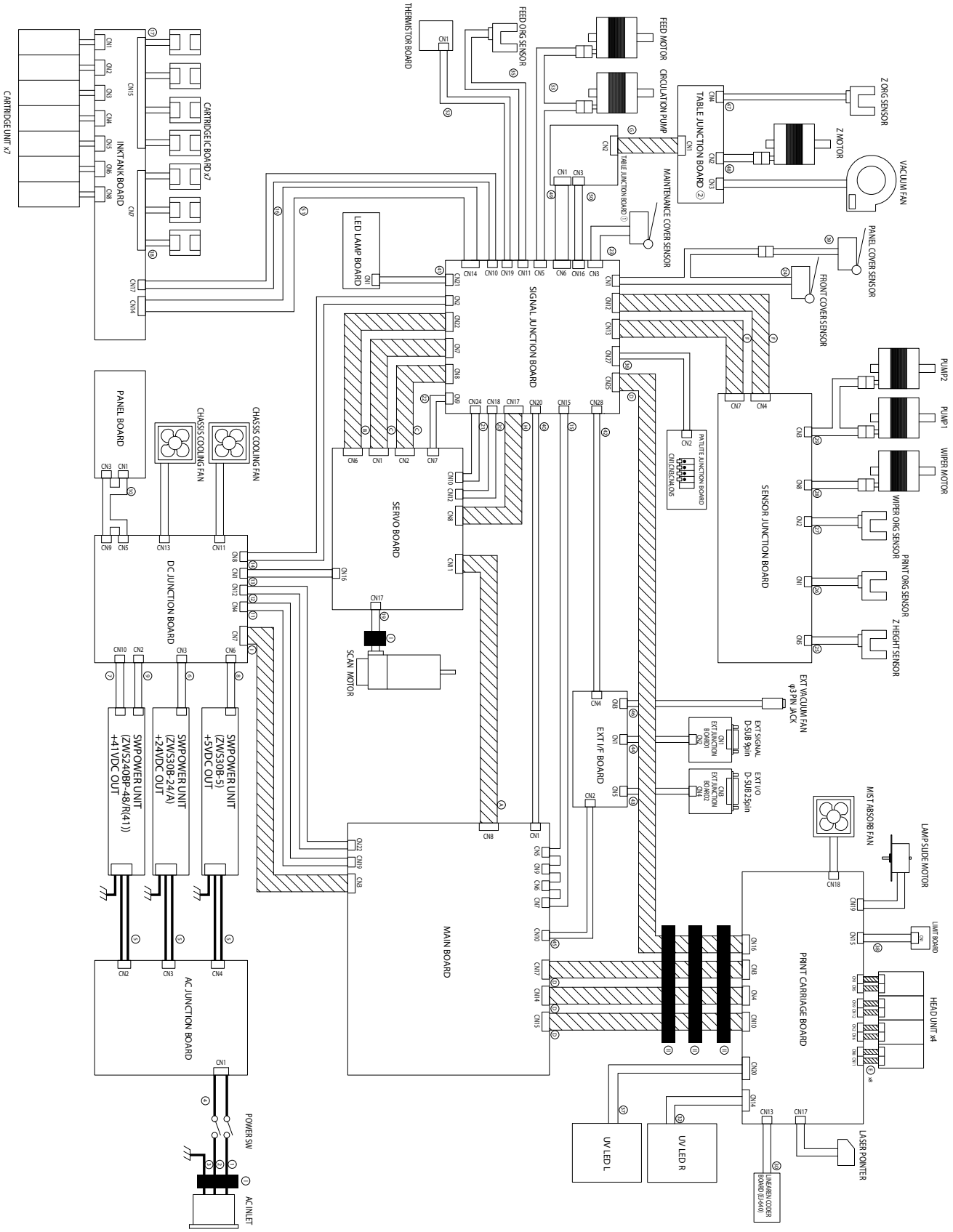
Thermistor Board 3-40
Arrangement Diagram (Component Side) . . 3-40
Circuit Diagram. 3-40

Limit Board 3-41
Arrangement Diagram (Component Side) . . 3-41
Circuit Diagram. 3-41

Service parts

For detailed information on the cables shown below, refer to Parts Finder Web.

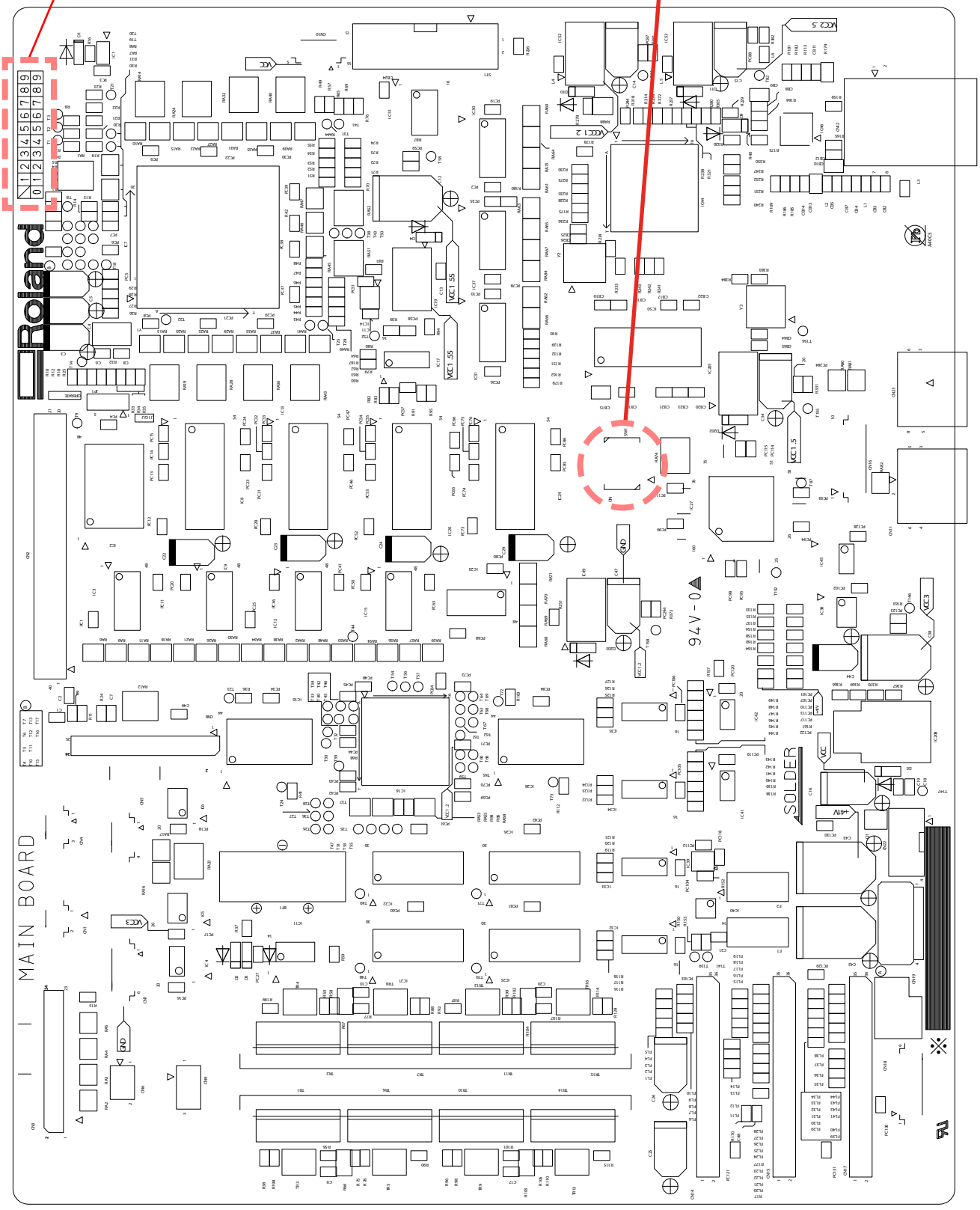
https://365rolanddg.sharepoint.com/sites/extranet/Work-SitePages/GSV-PartsFinder.aspx



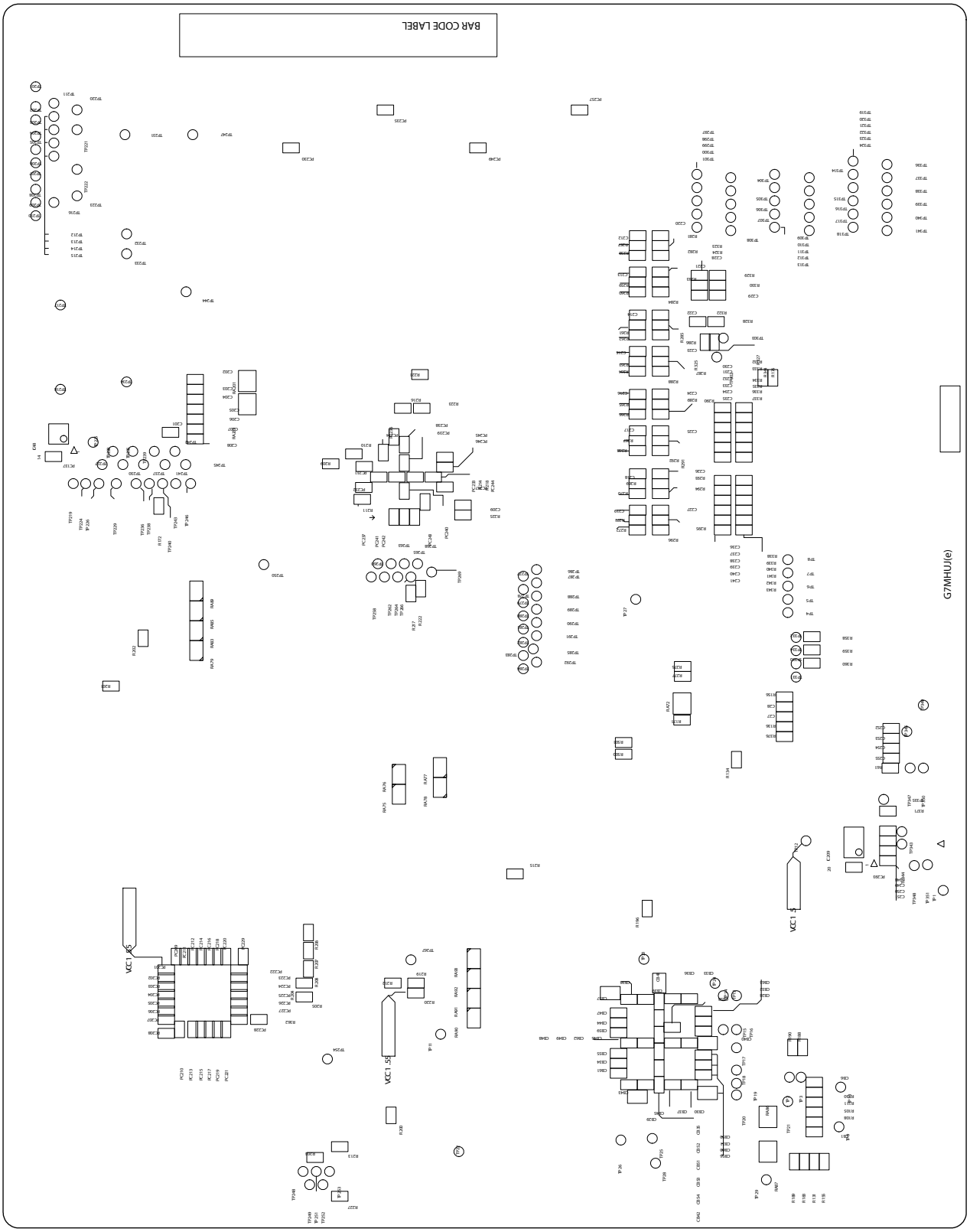
Arrangement Diagram (Component Side)

DIP SW	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6
	ON	OFF	OFF	ON	OFF	OFF

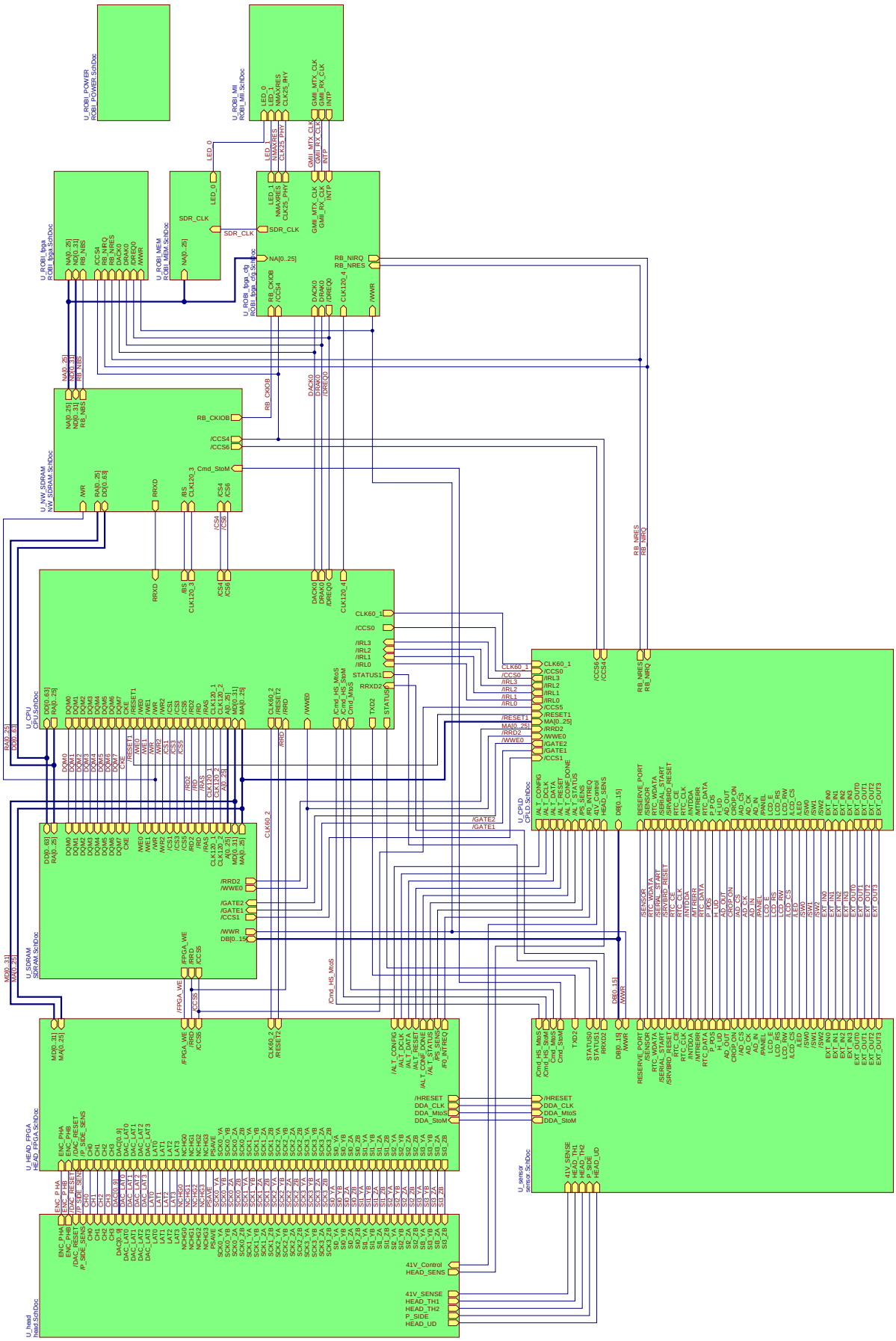
It indicates the version of the Board.



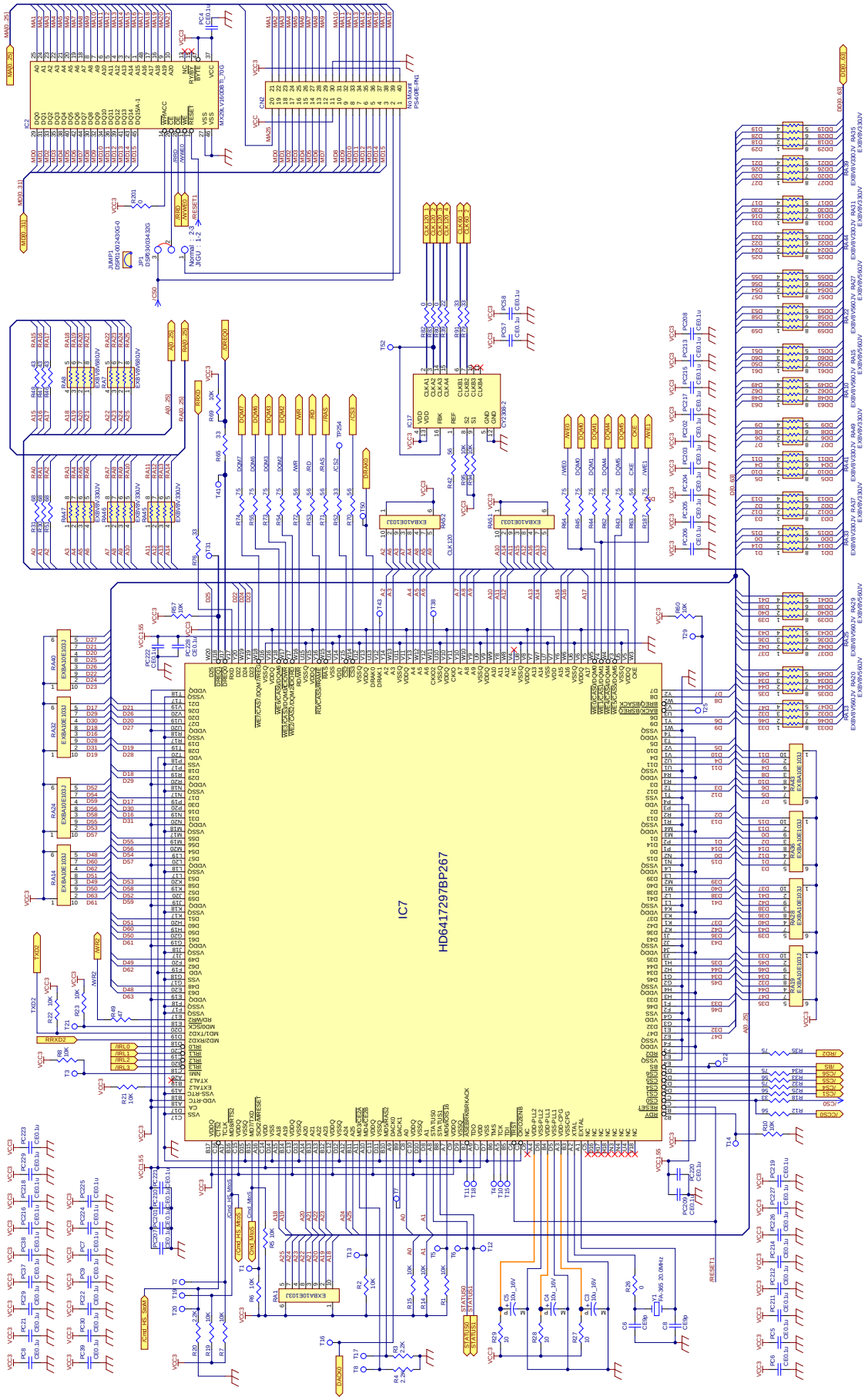
Arrangement Diagram (Soldering Side)



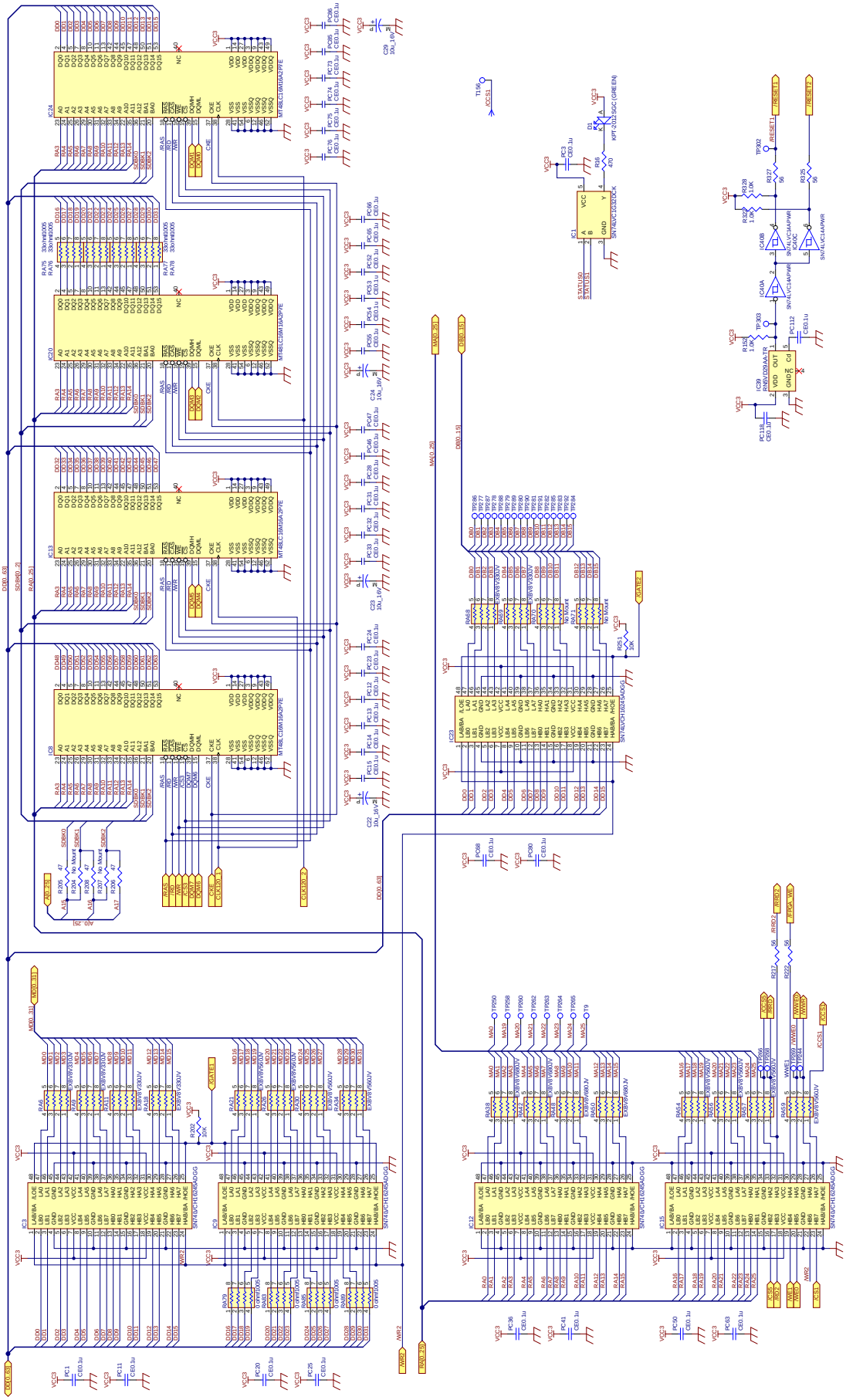
Circuit Diagram (1/8)



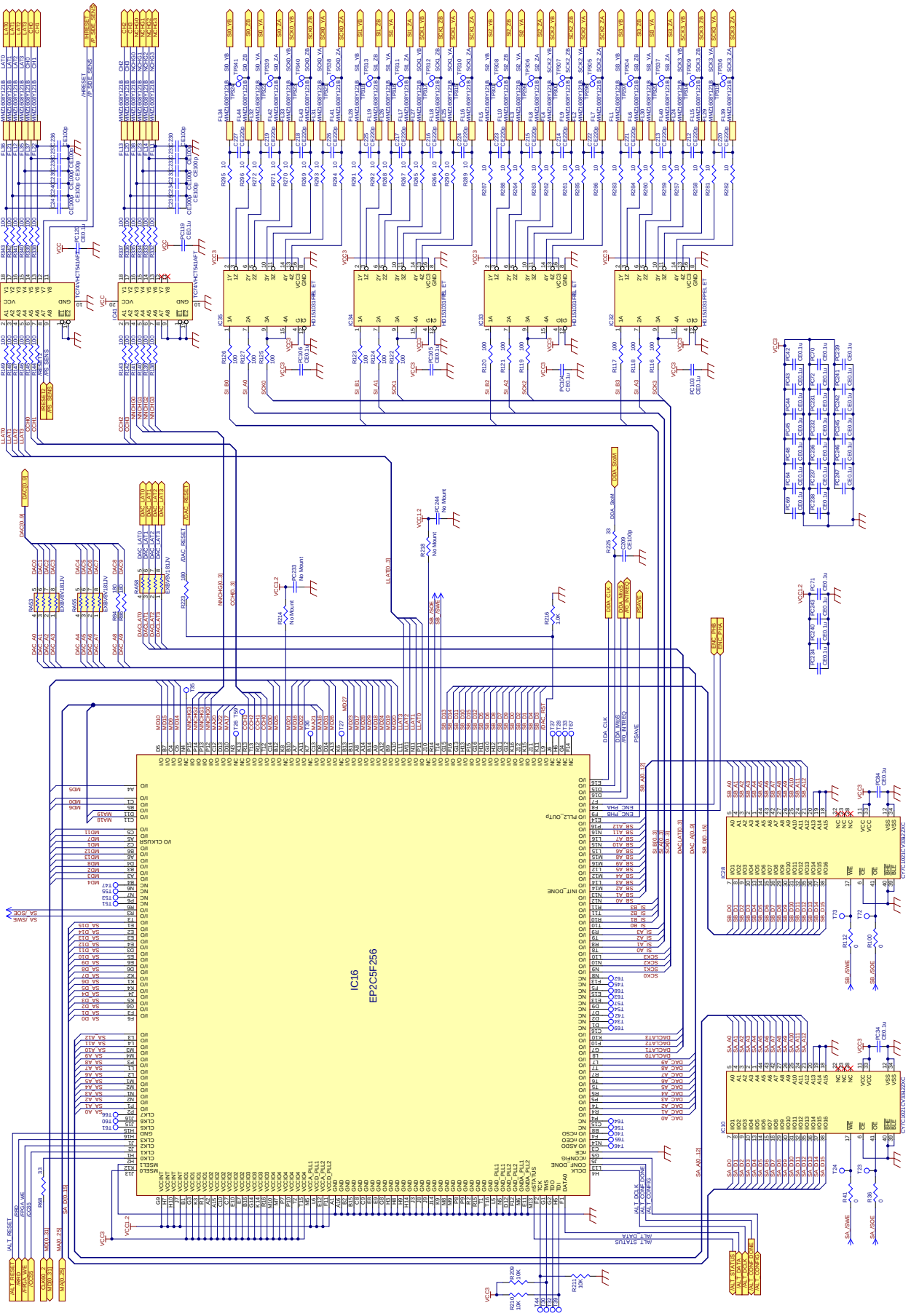
Circuit Diagram (2/8)



Circuit Diagram (3/8)



Circuit Diagram (4/8)



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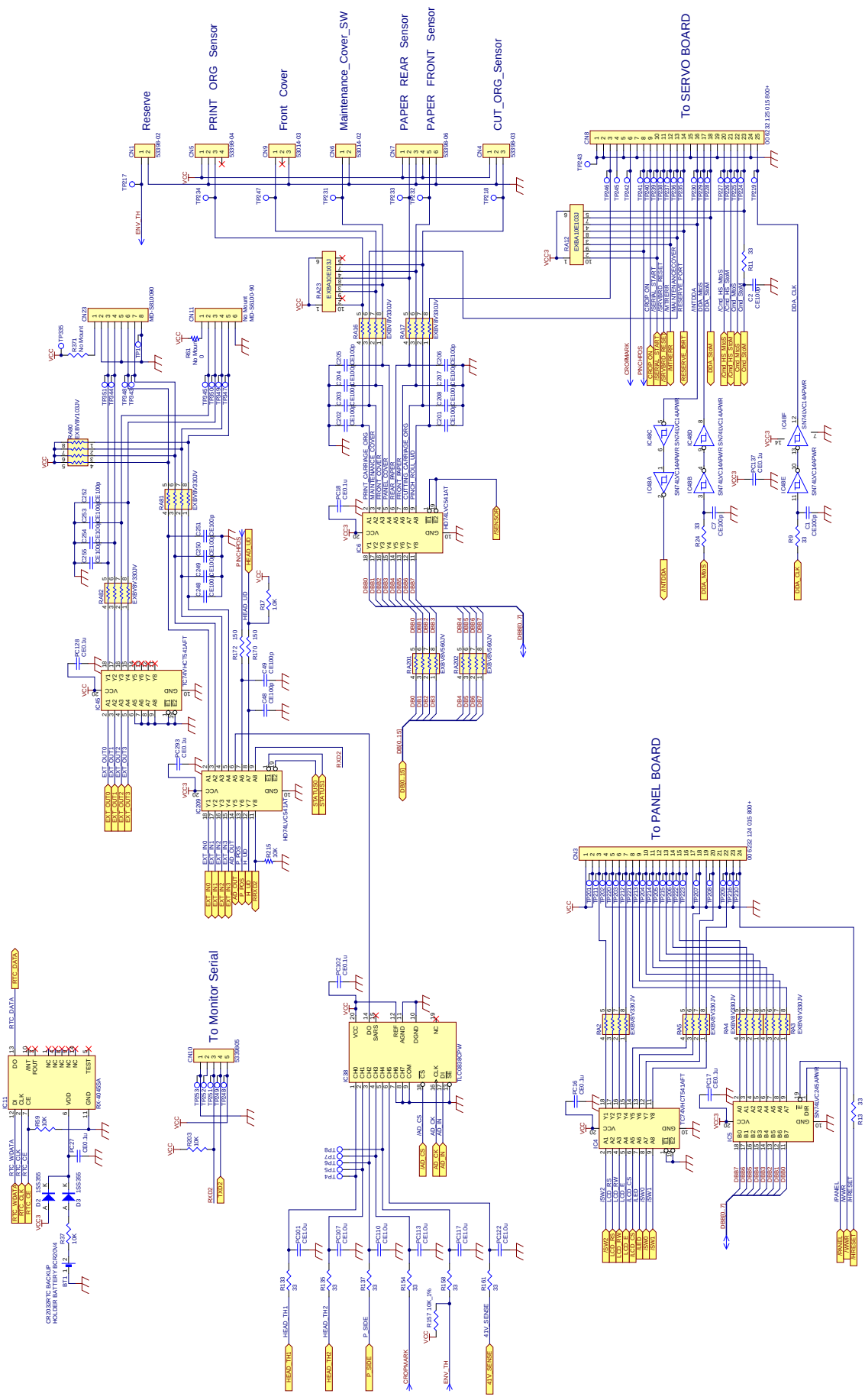

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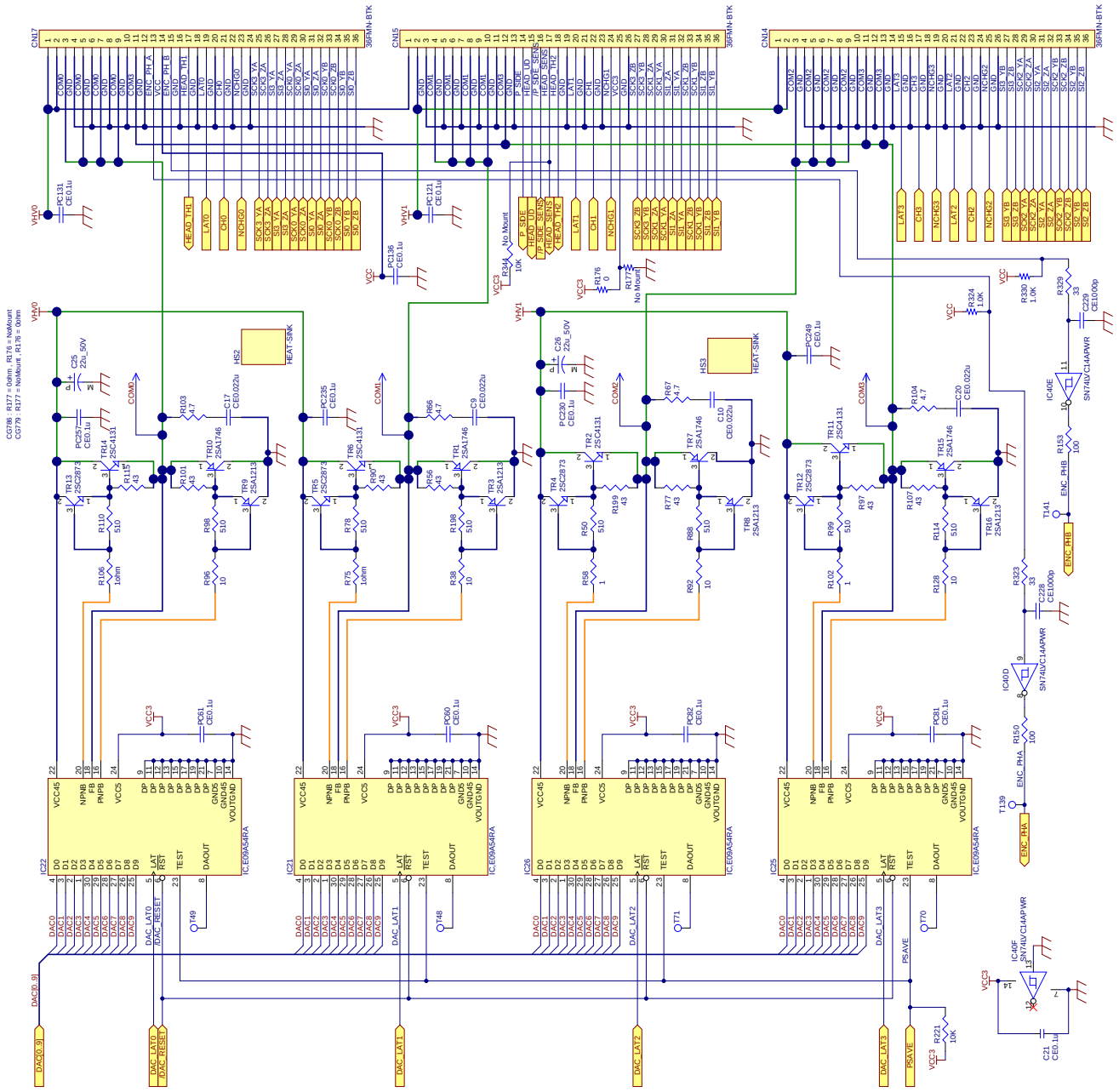

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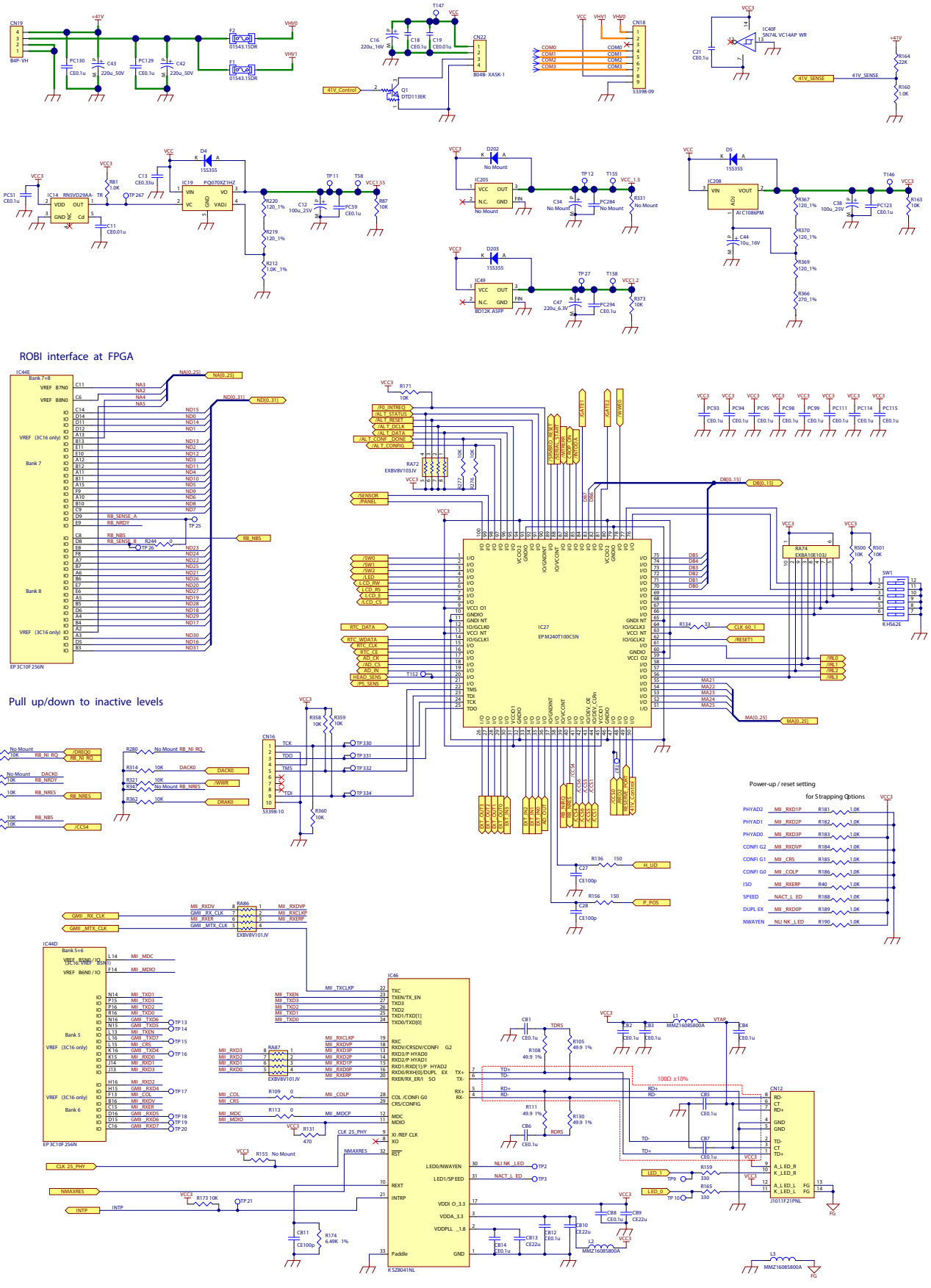
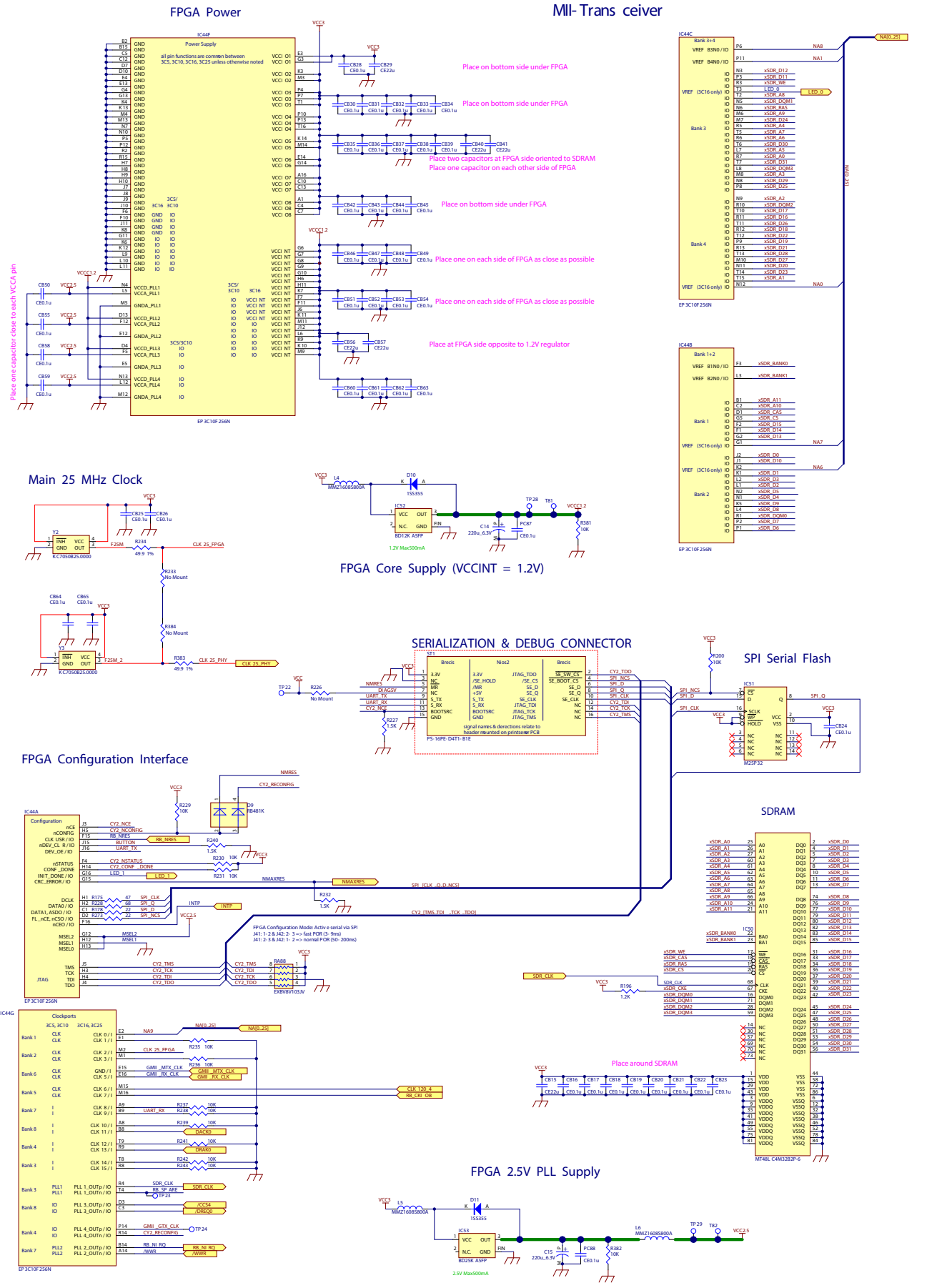
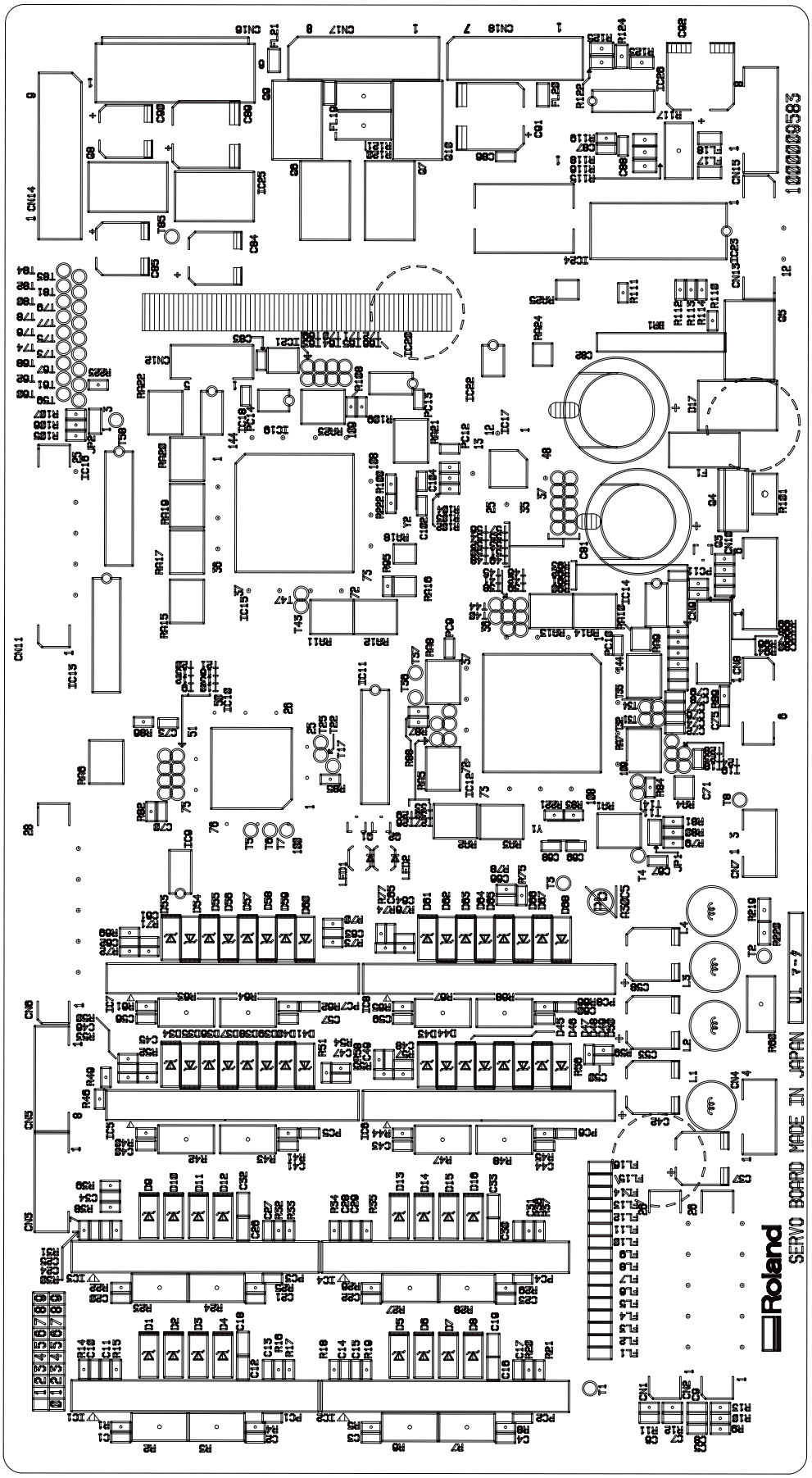


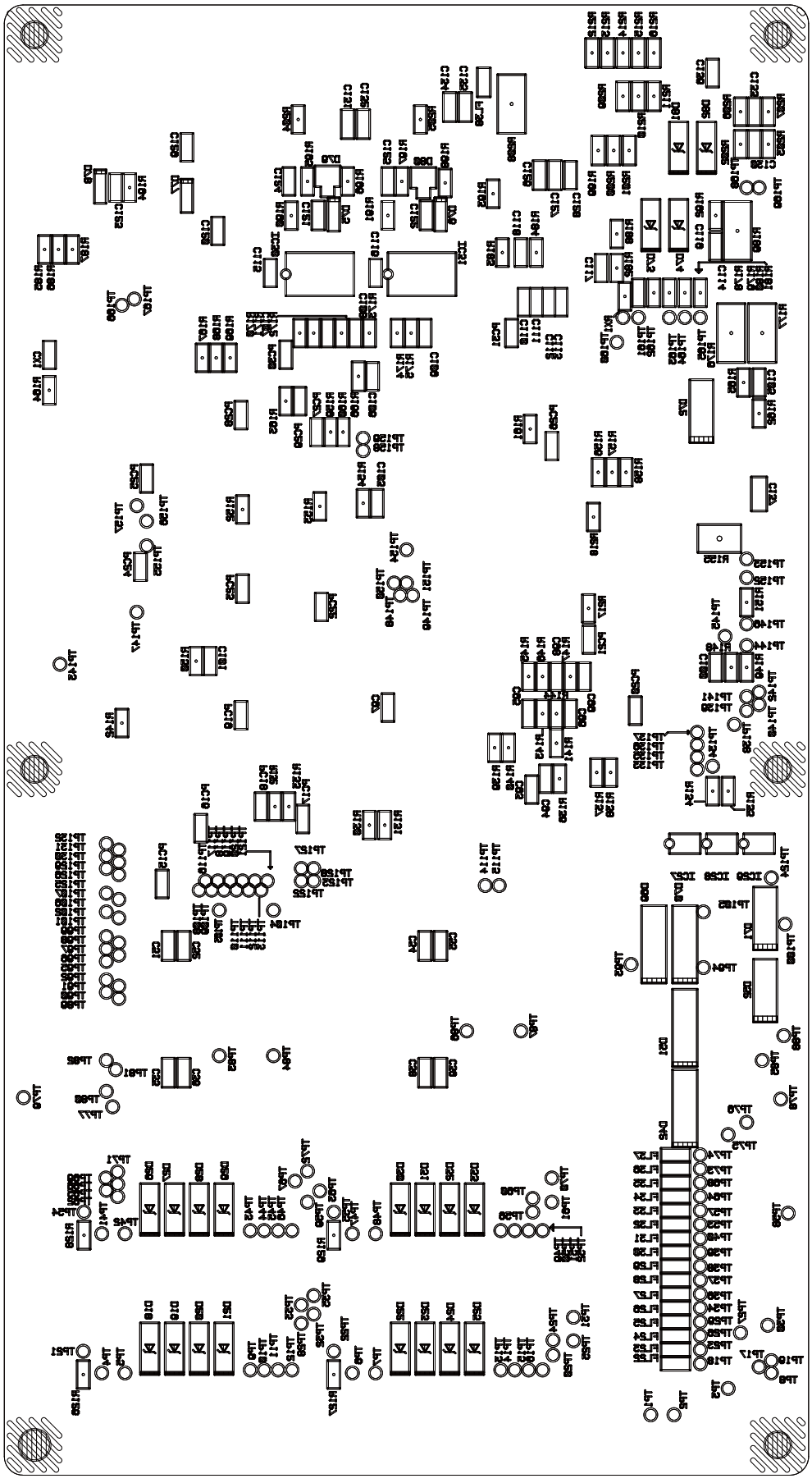
Circuit Diagram (8/8)


FPGA Power
MII-Trans ceiver
Main 25 MHz Clock
FPGA Core Supply (VCCINT = 1.2V)
SERIALIZATION & DEBUG CONNECTOR
SPI Serial Flash
FPGA Configuration Interface
SDRAM
FPGA 2.5V PLL Supply
Place on bottom side under FPGA
Place two capacitors at FPGA side oriented to SDRAM
Place one capacitor on each other side of FPGA
Place one on each side of FPGA as close as possible
Place at FPGA side opposite to 1.2V regulator
Place one capacitor close to each VCCA pin
Place around SDRAM
EP 3C10F 256N

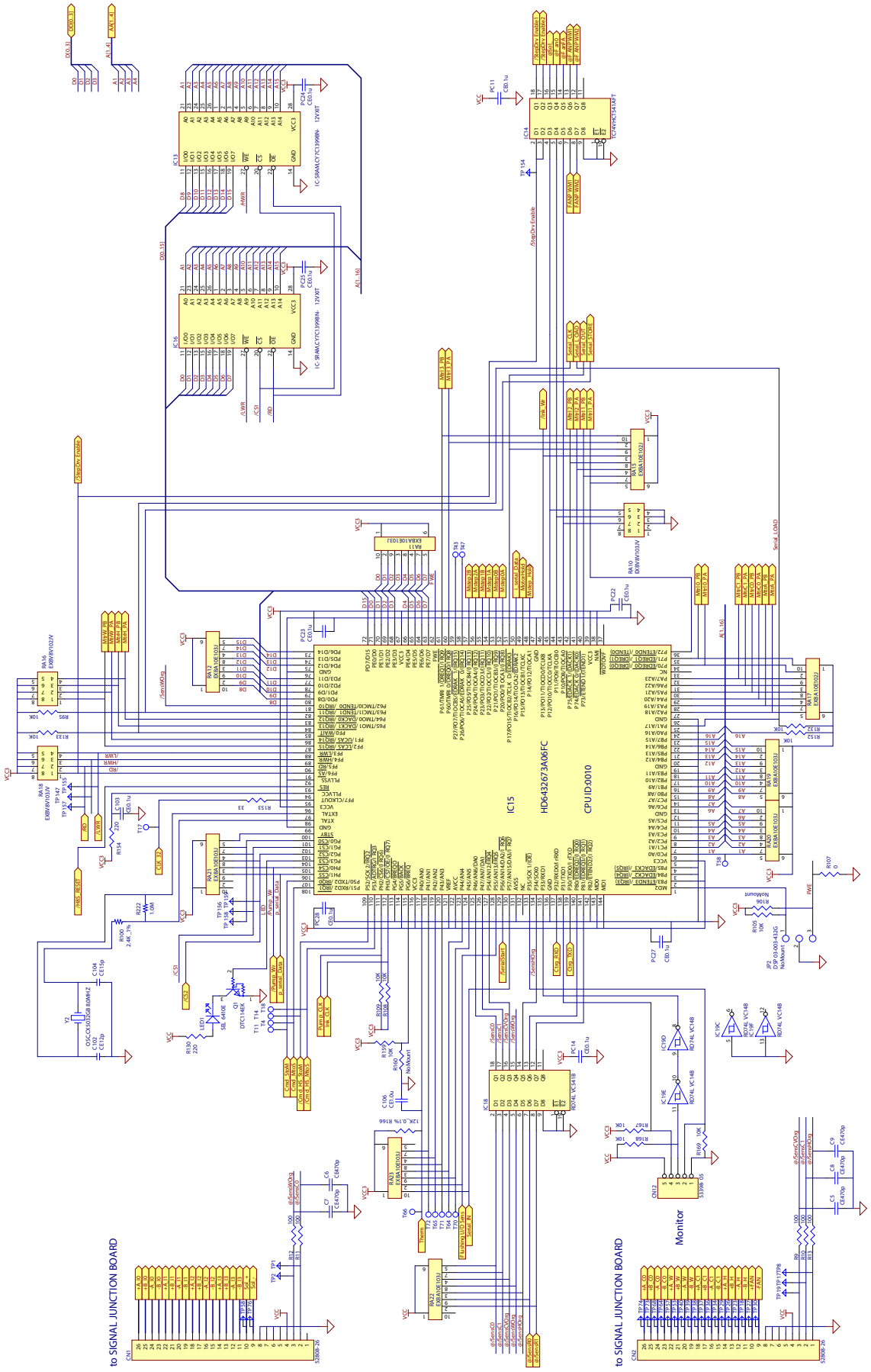
Arrangement Diagram (Component Side)



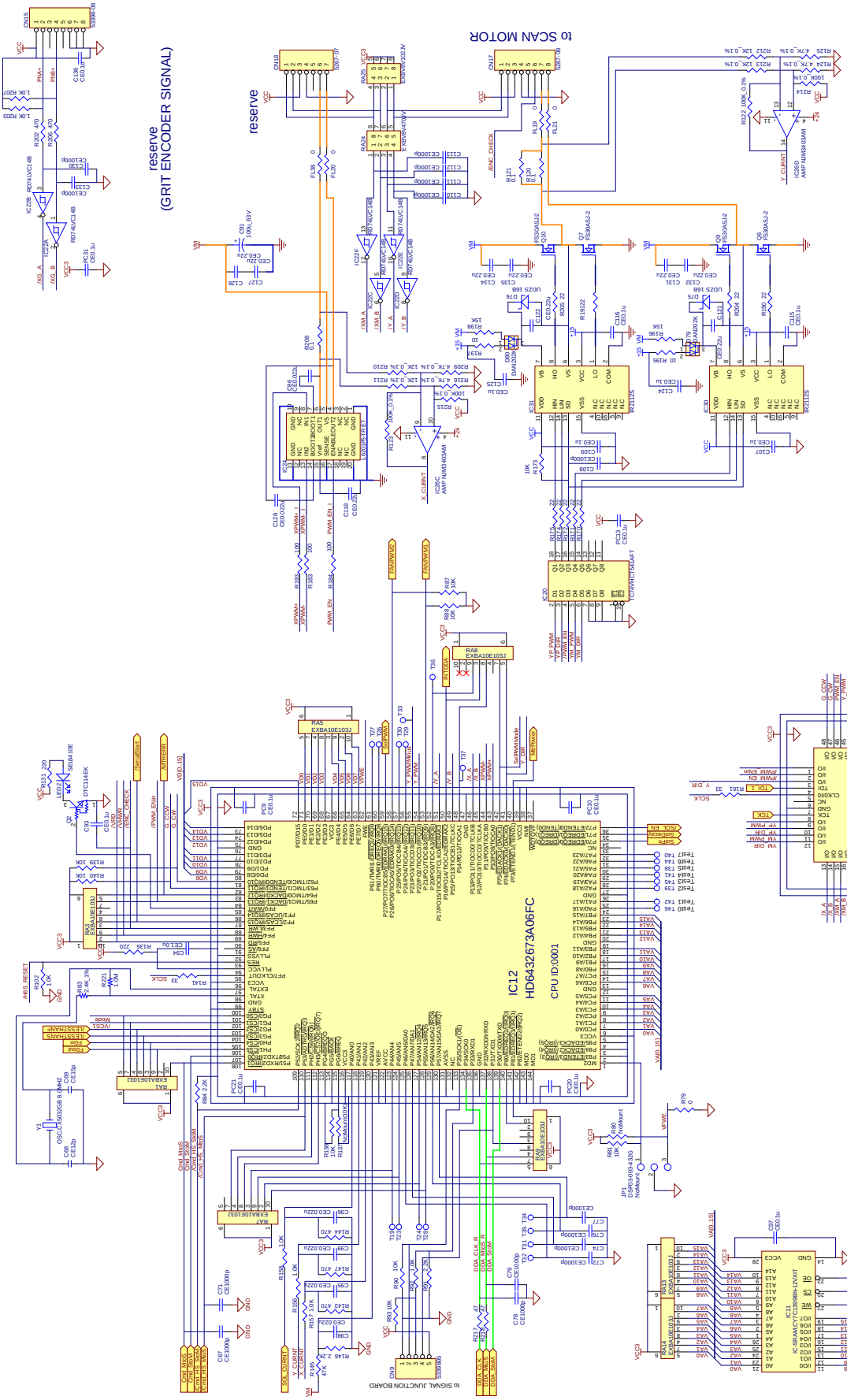
Arrangement Diagram (Soldering Side)



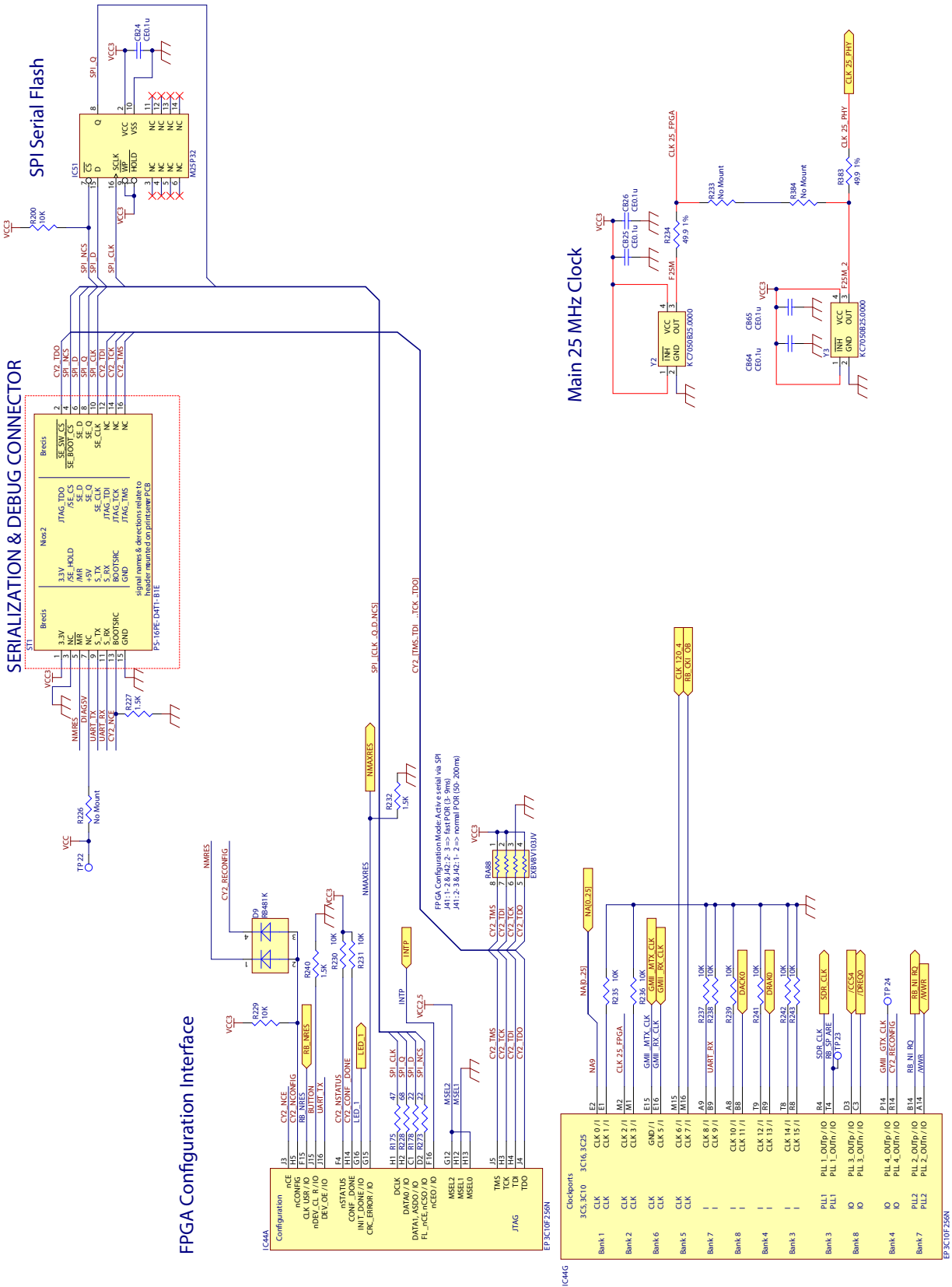
Circuit Diagram (1/4)



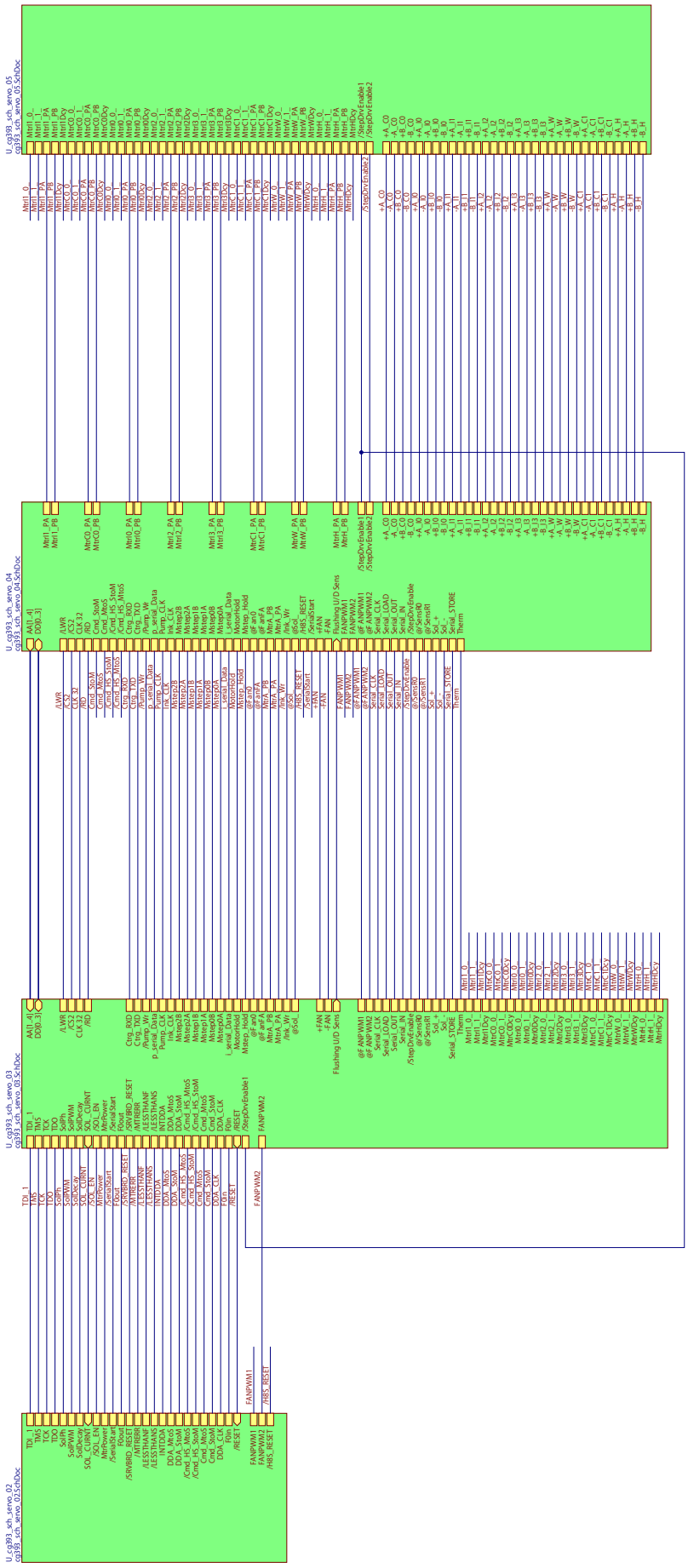
Circuit Diagram (2/4)



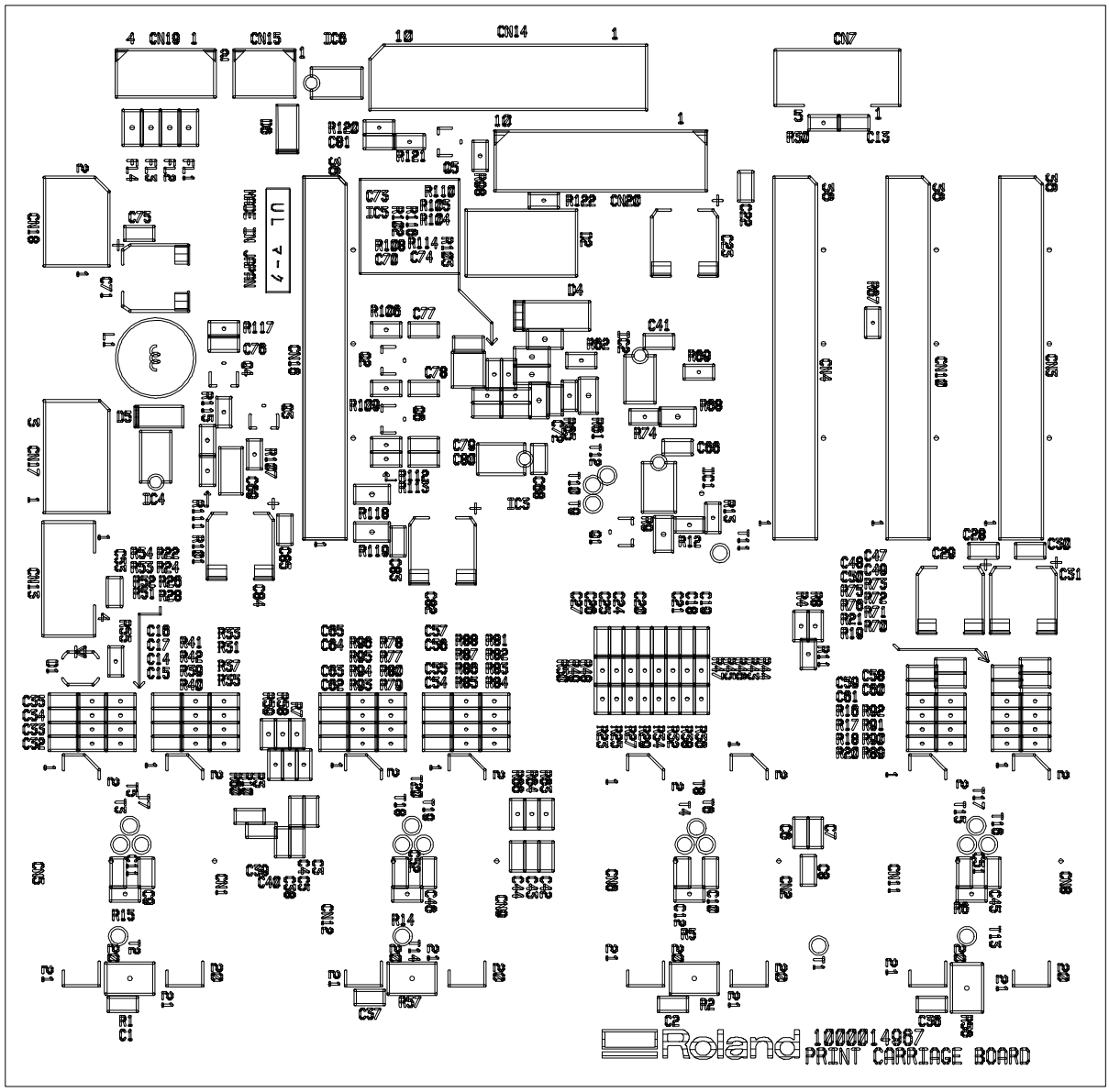
Circuit Diagram (3/4)



Circuit Diagram (4/4)

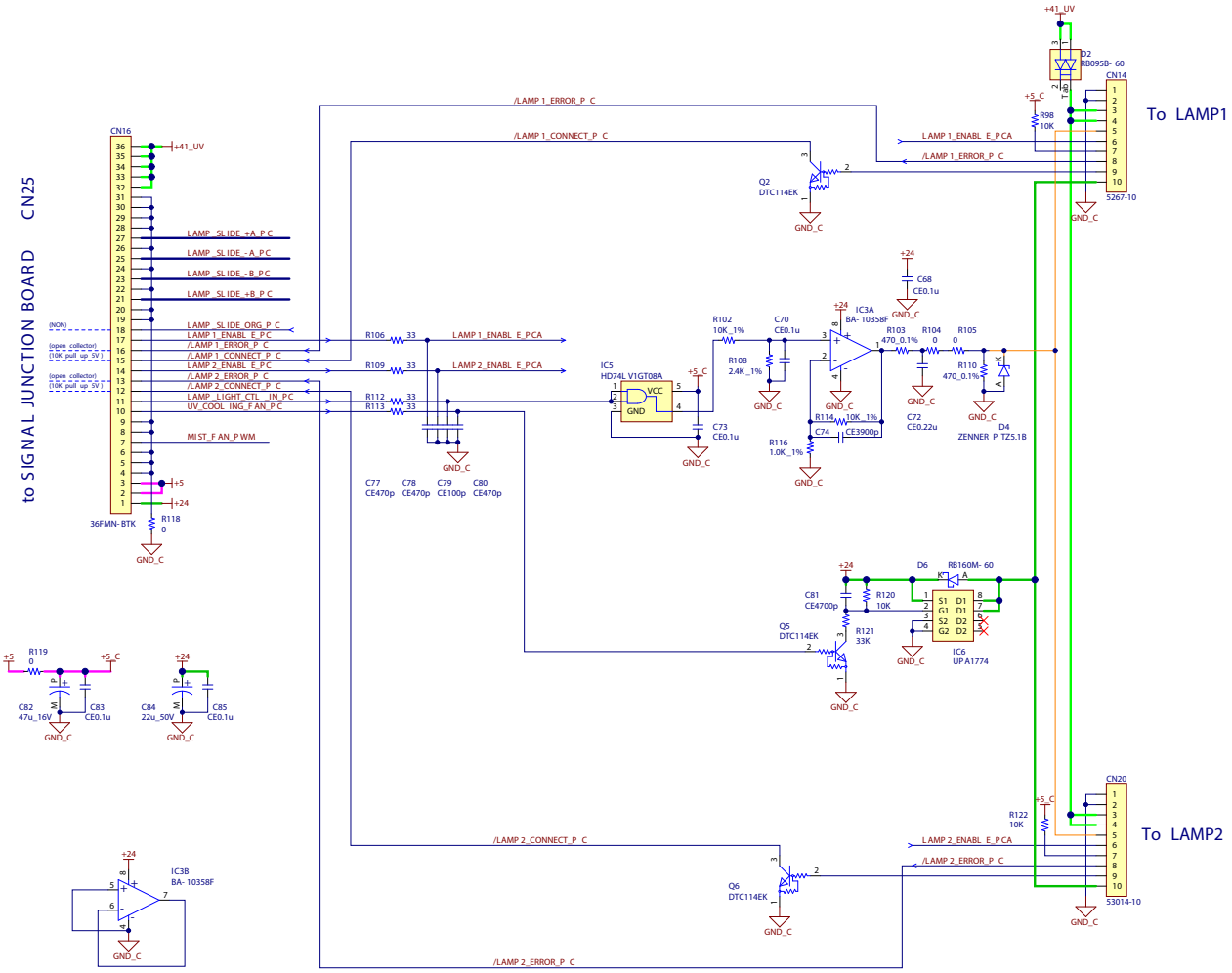


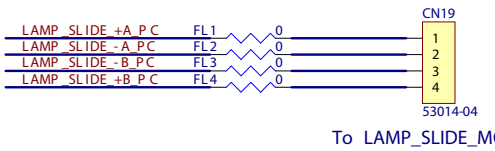
Arrangement Diagram (Component Side)

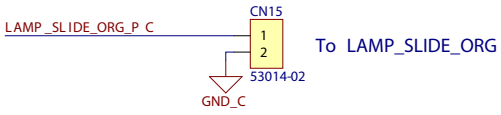


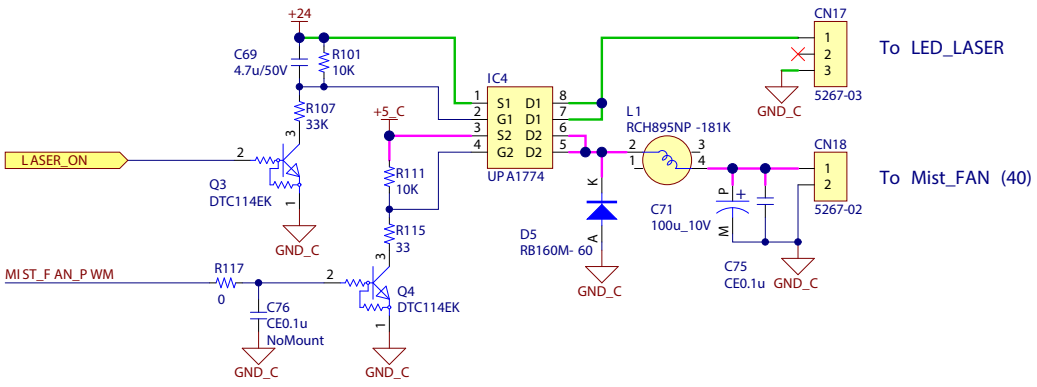
Circuit Diagram (1/2)

Circuit Diagram (2/2)

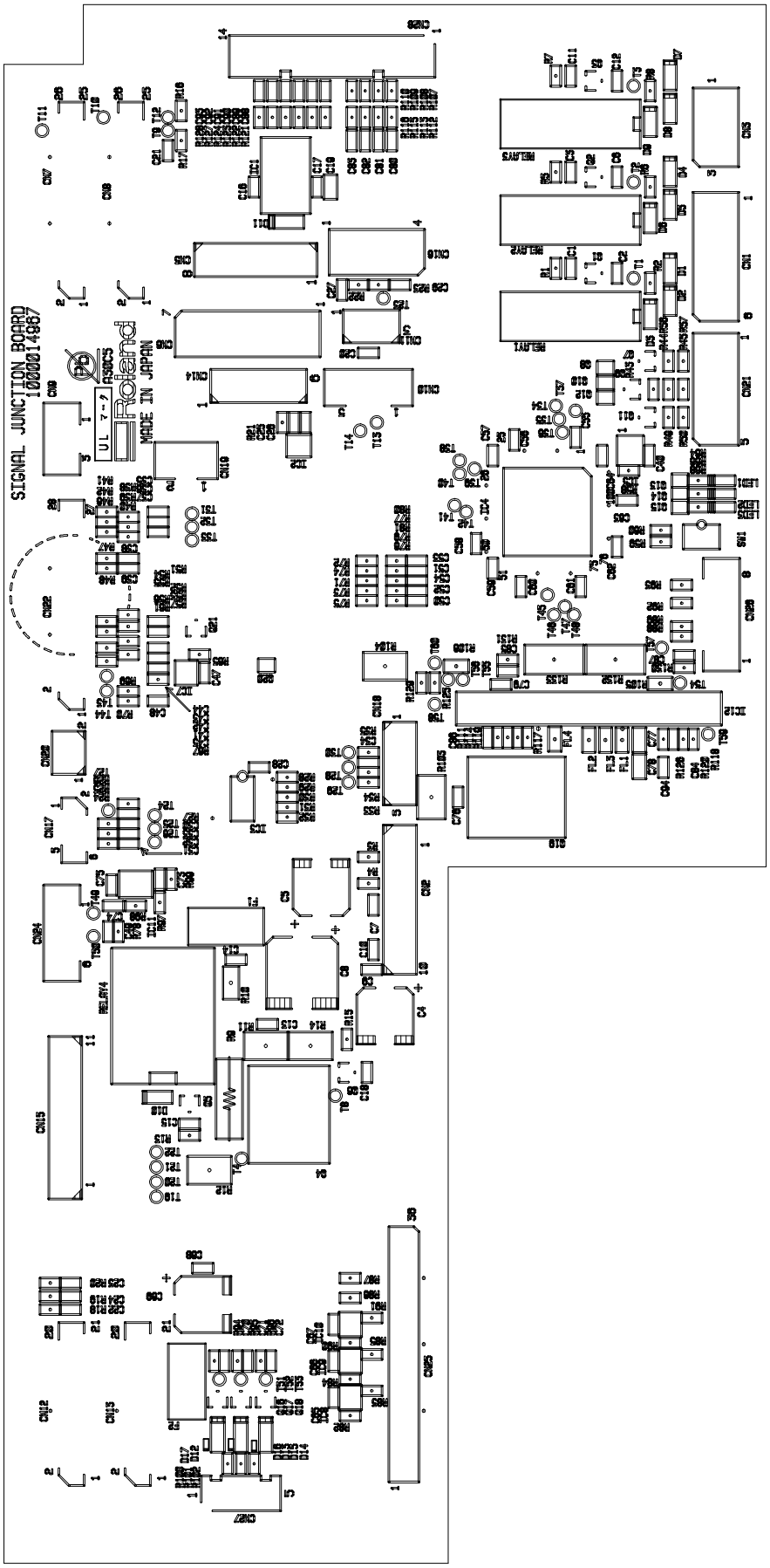




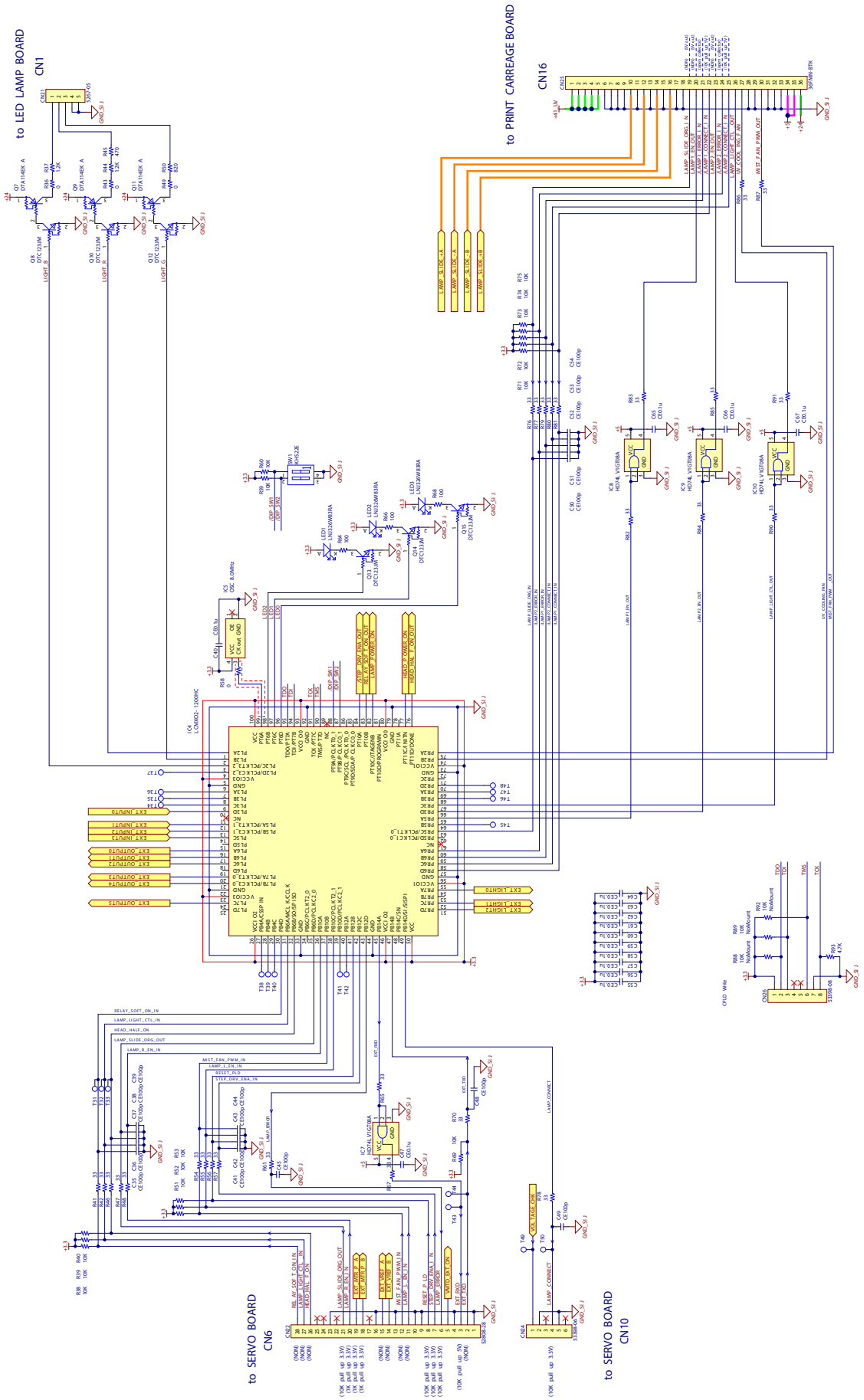




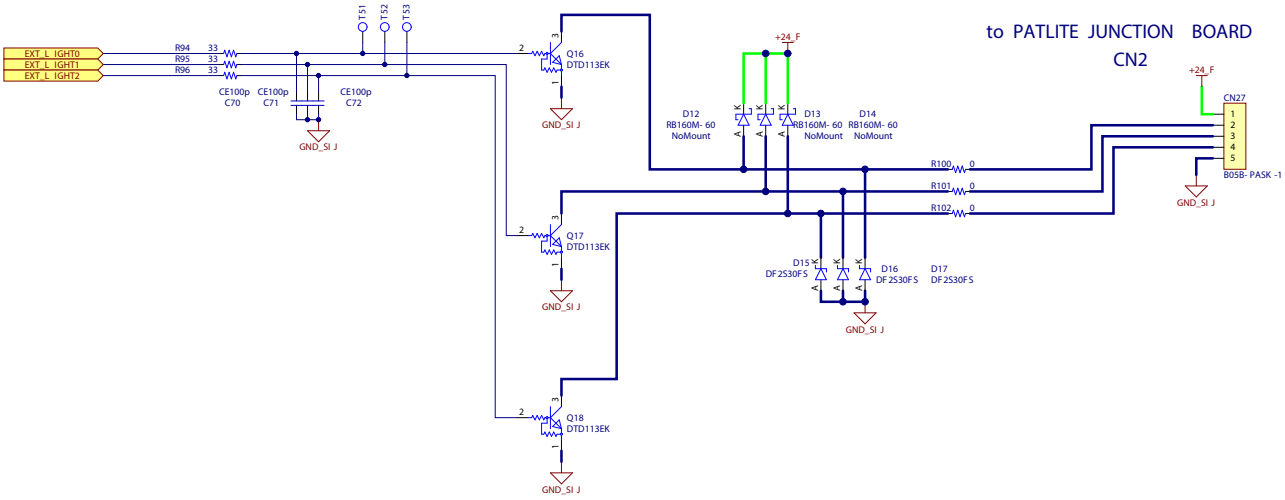
Arrangement Diagram (Component Side)

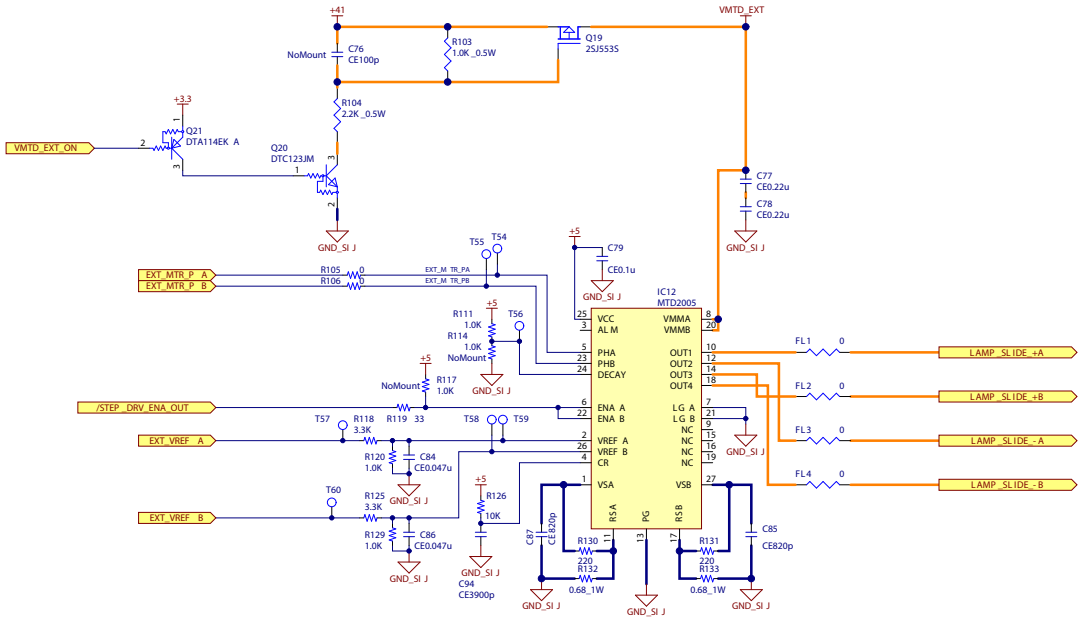


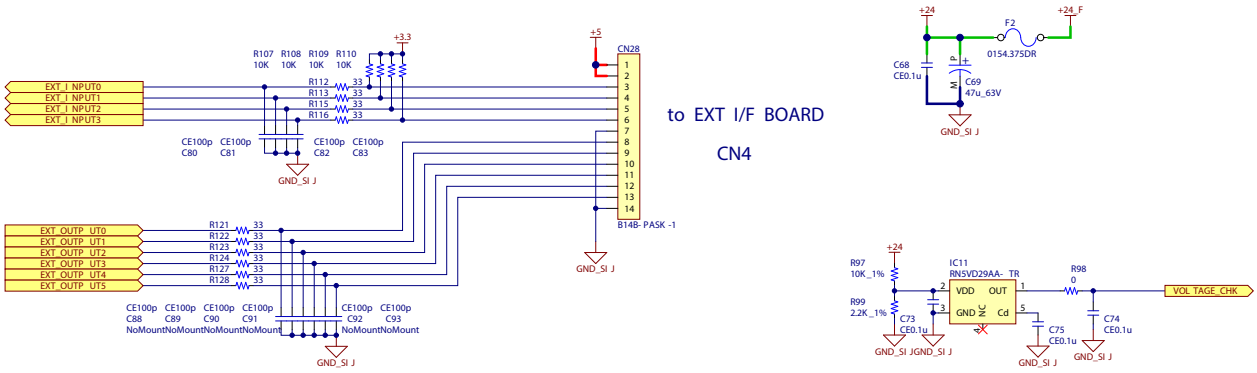
Circuit Diagram (1/4)



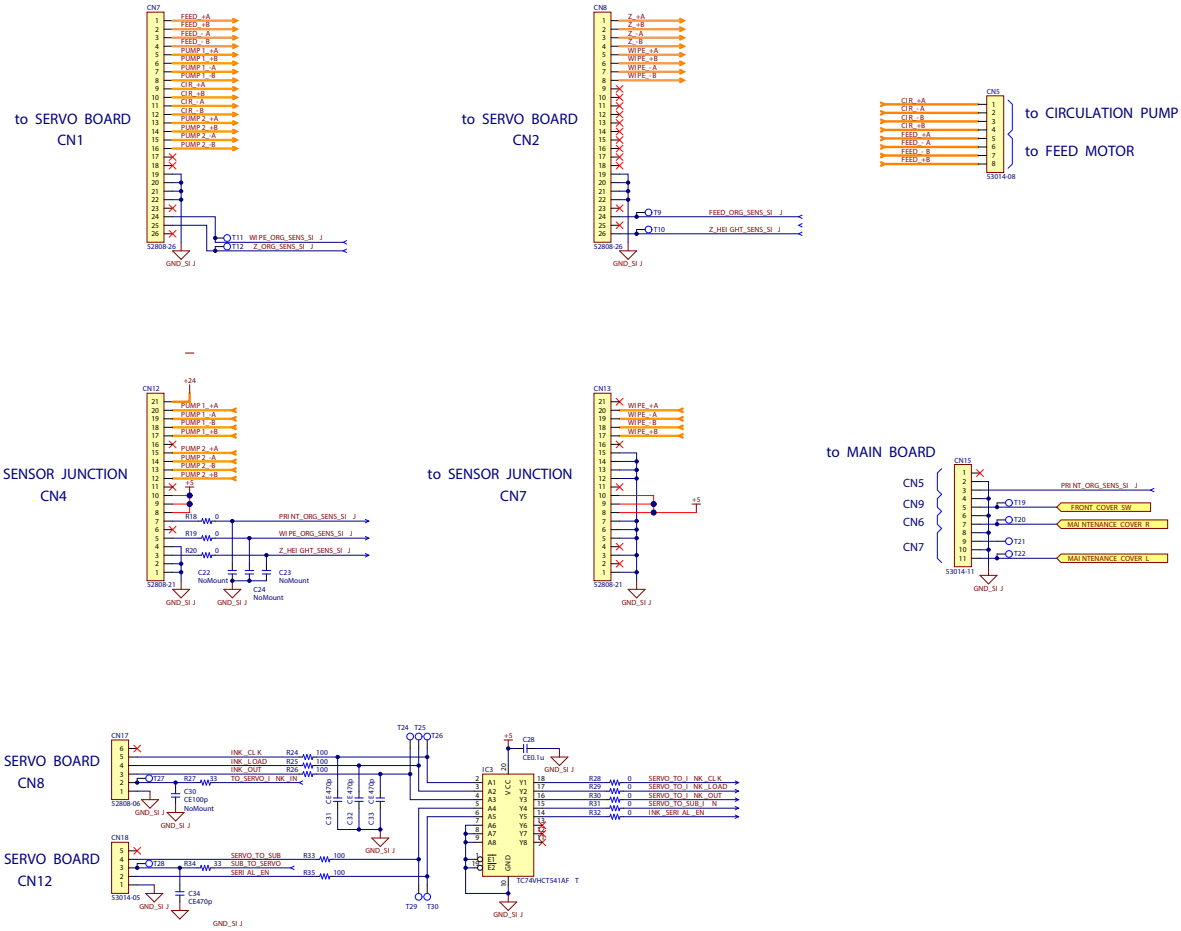
Circuit Diagram (2/4)



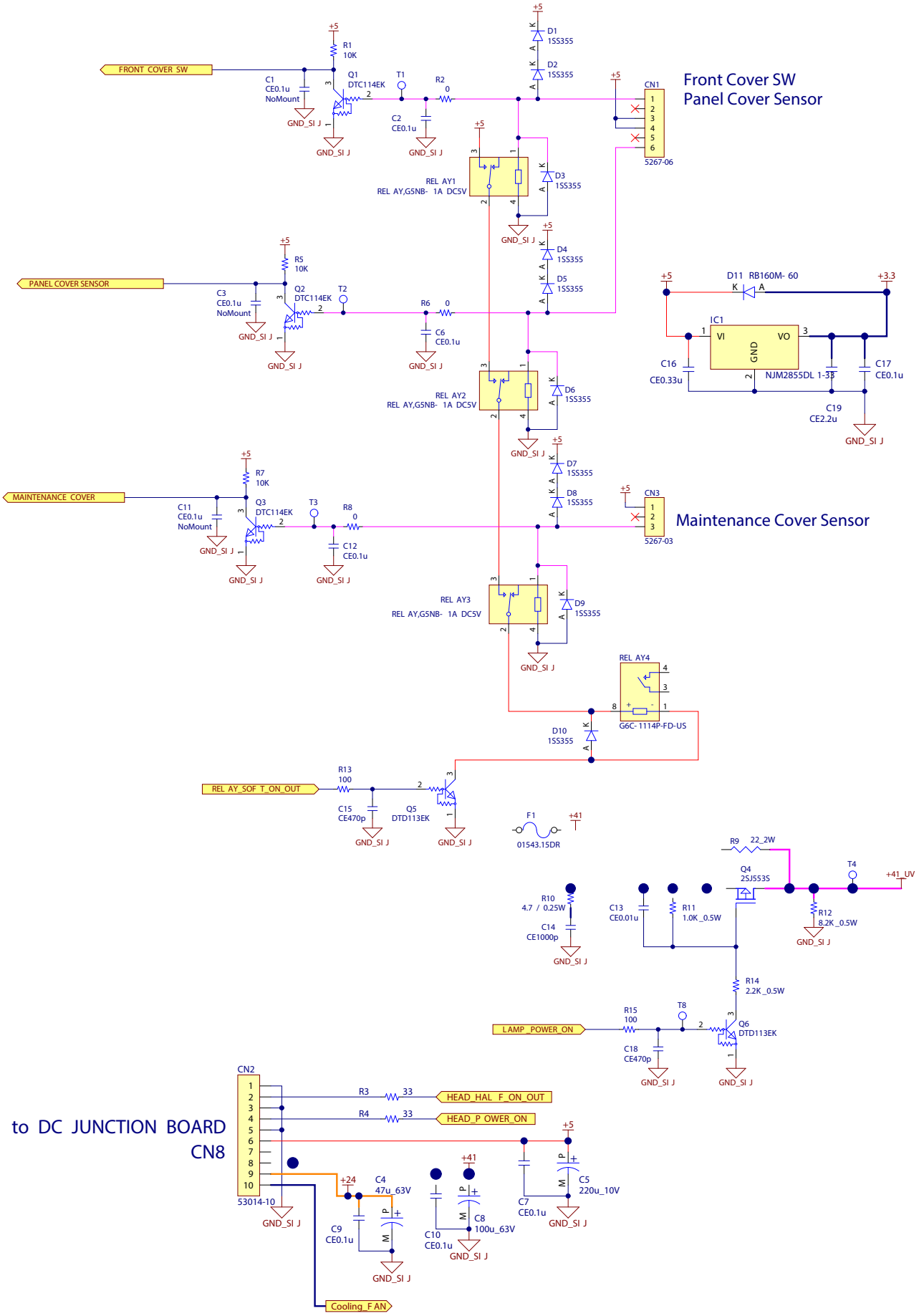




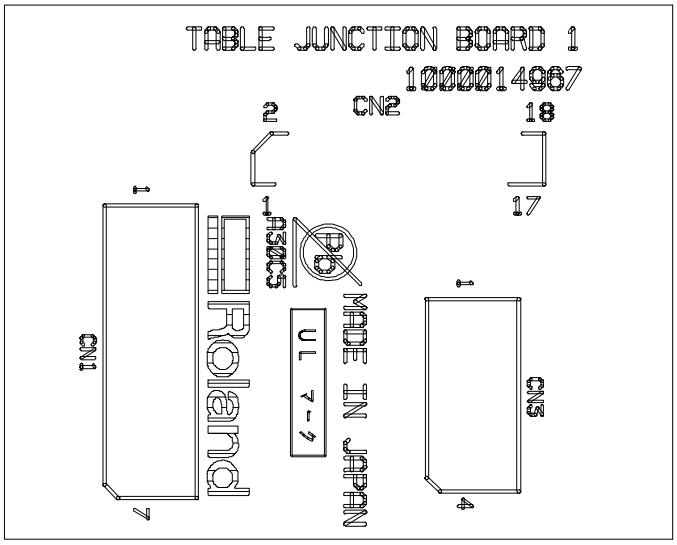
Circuit Diagram (3/4)



Circuit Diagram (4/4)



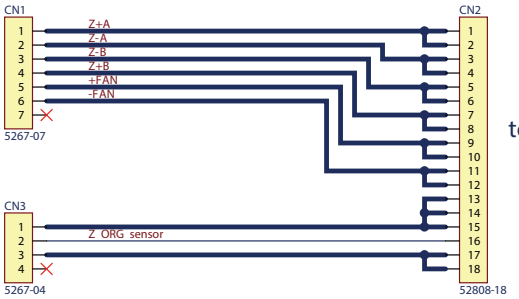
Arrangement Diagram (Component Side)



Circuit Diagram

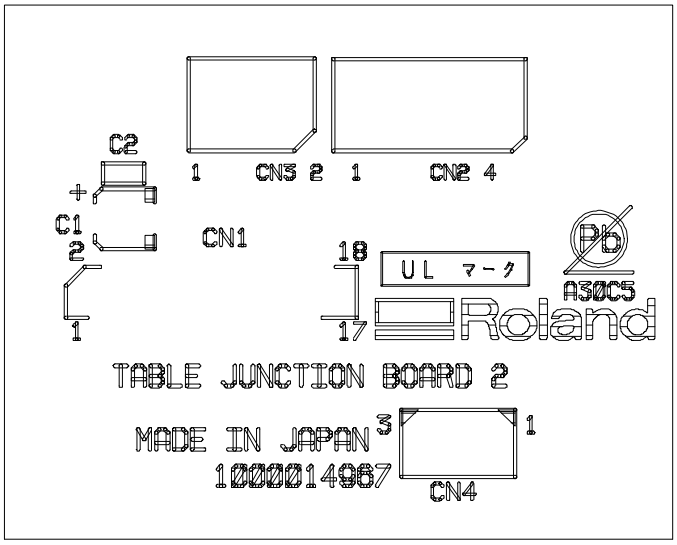
to SIGNAL JUNCTION BOARD CN5

to SIGNAL JUNCTION BOARD CN16

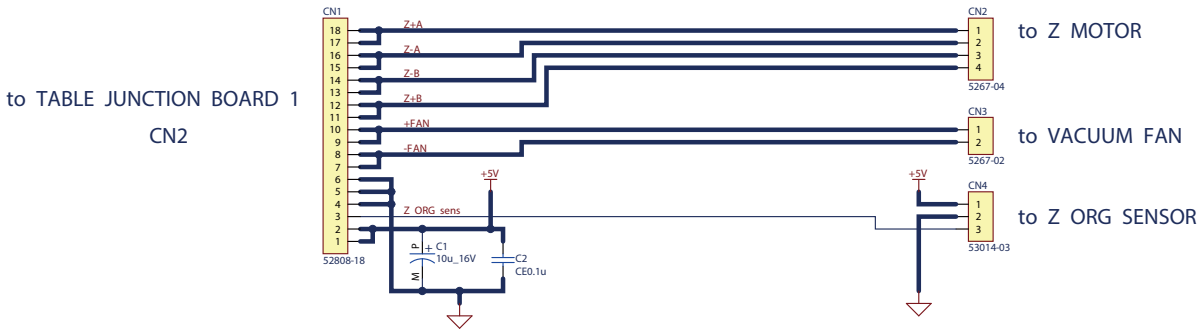


to TABLE JUNCTION BOARD 2 CN1

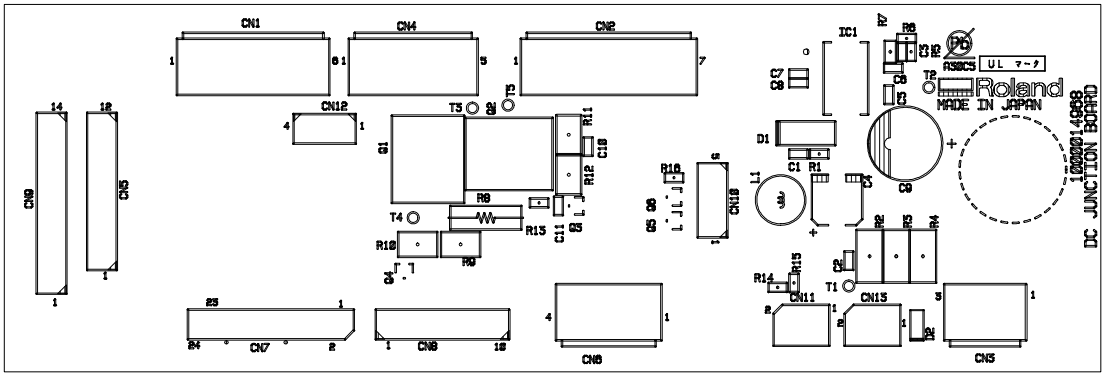
Arrangement Diagram (Component Side)



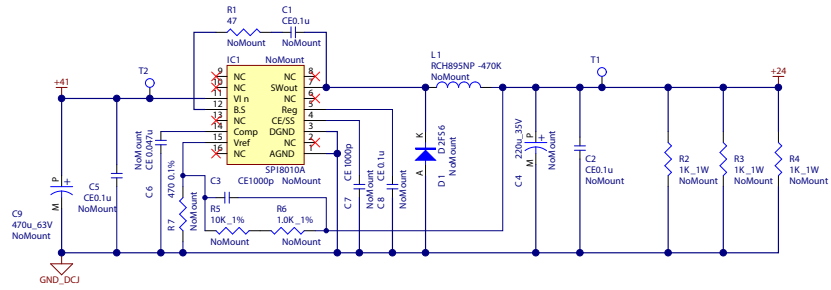
Circuit Diagram

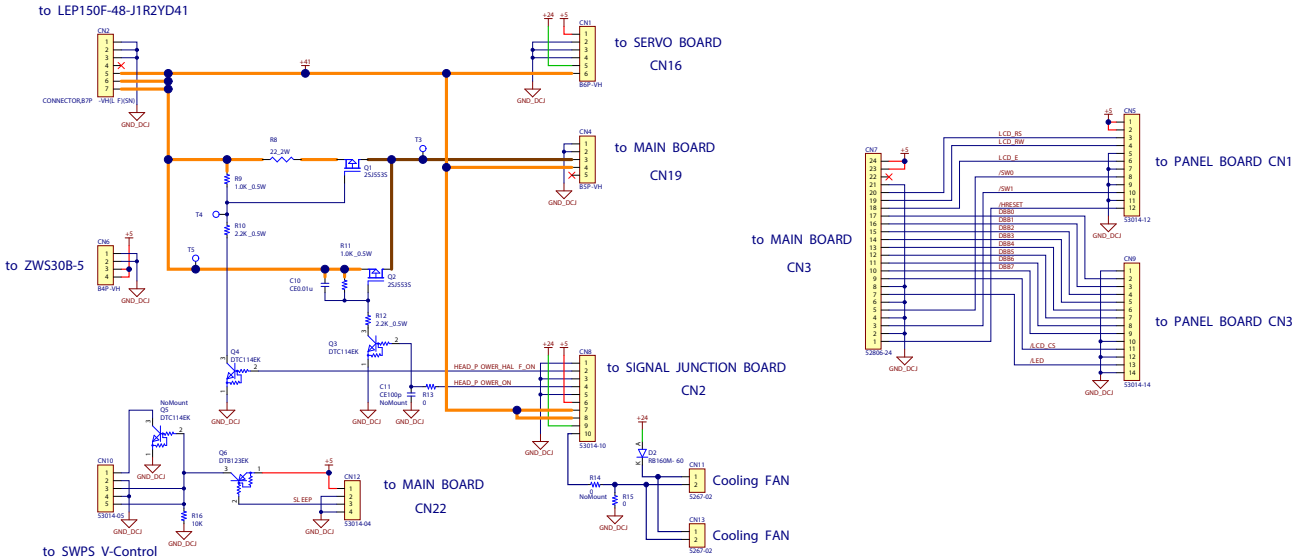


Arrangement Diagram (Component Side)

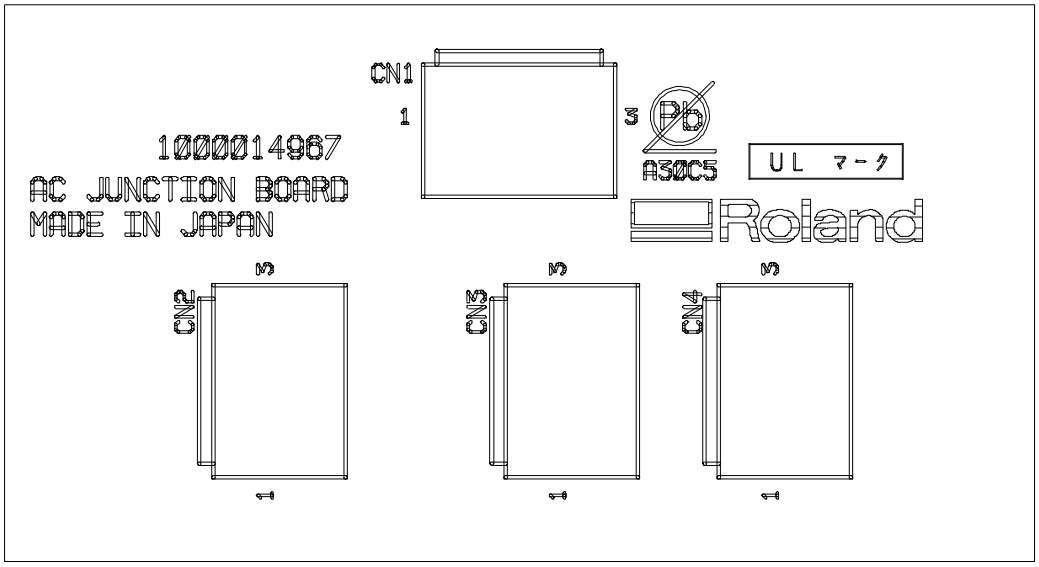


Circuit Diagram

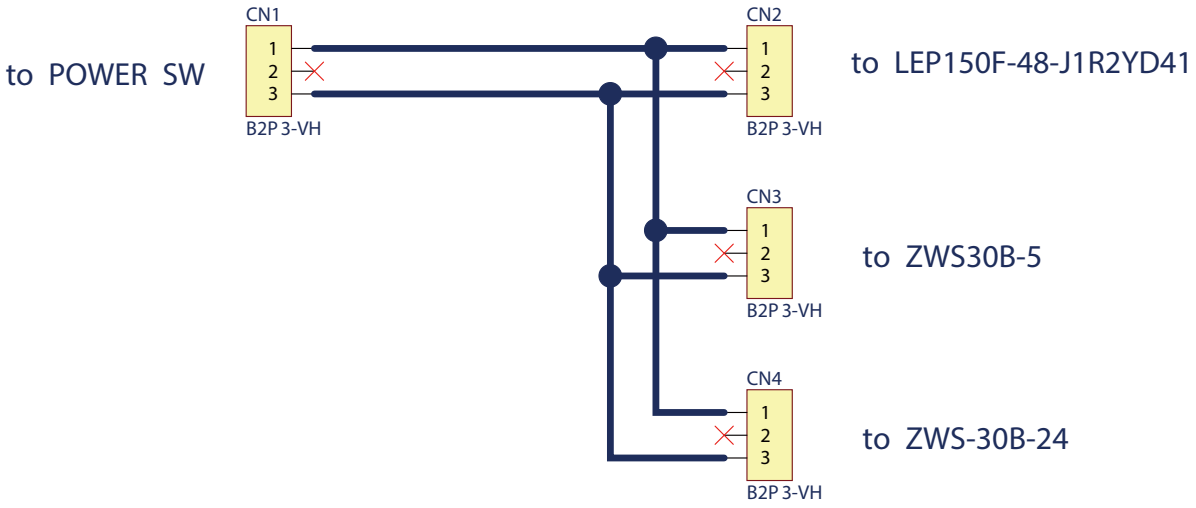




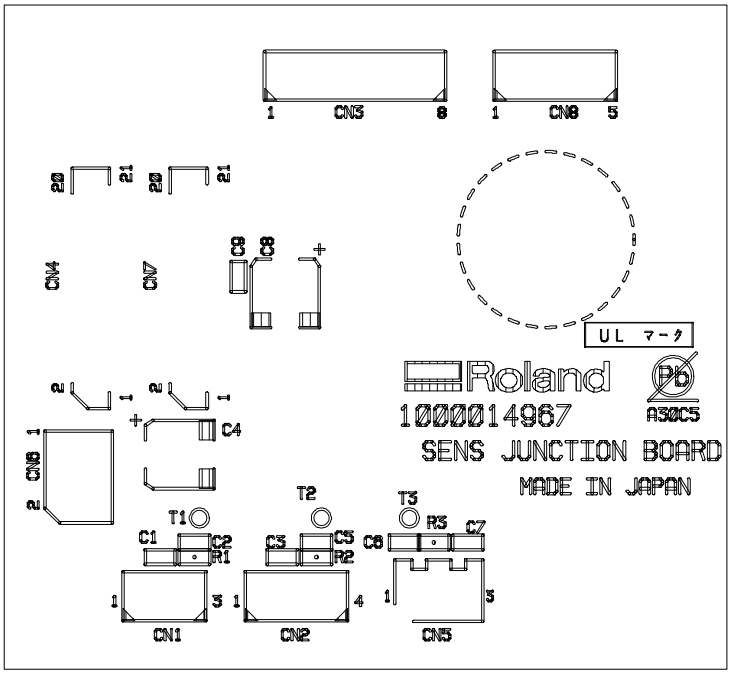
Arrangement Diagram (Component Side)



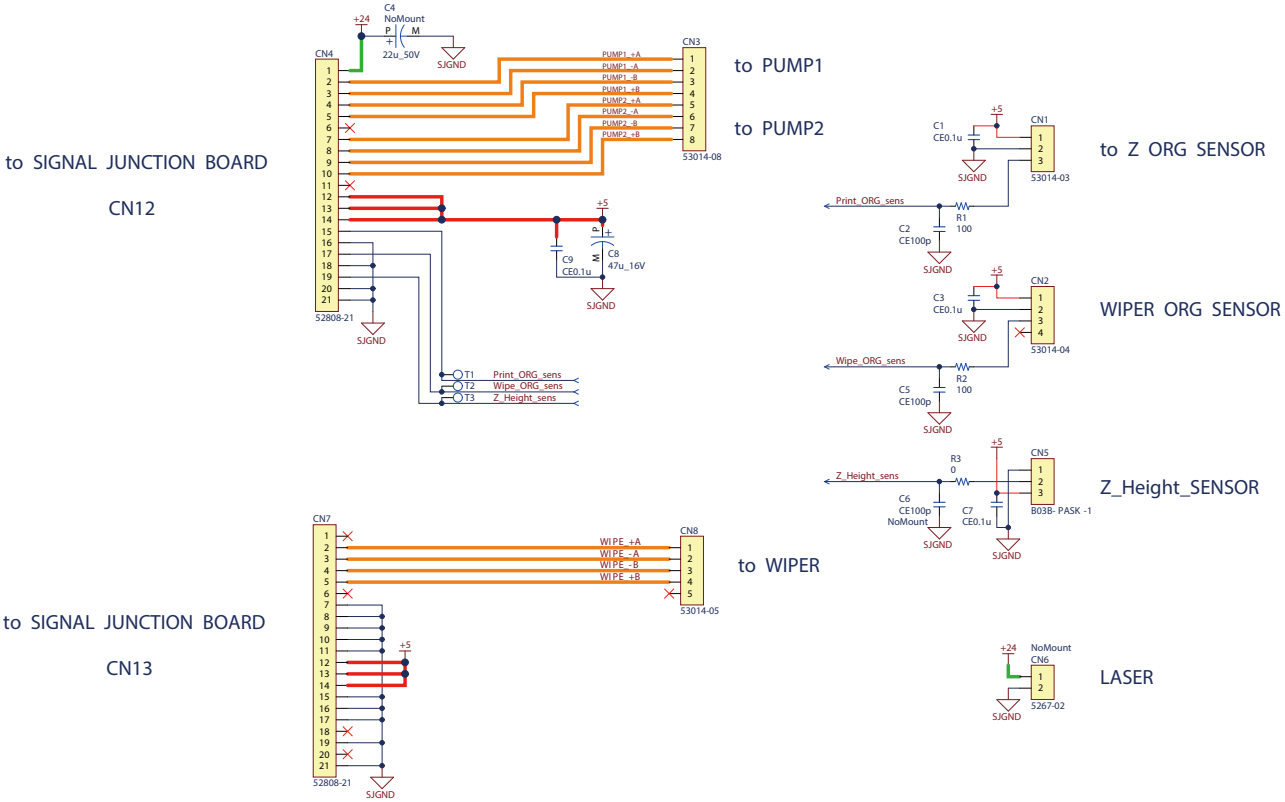
Circuit Diagram



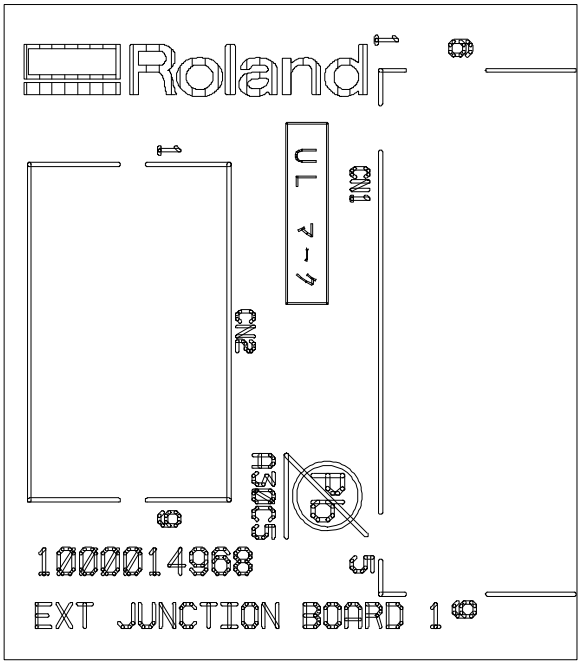
Arrangement Diagram (Component Side)



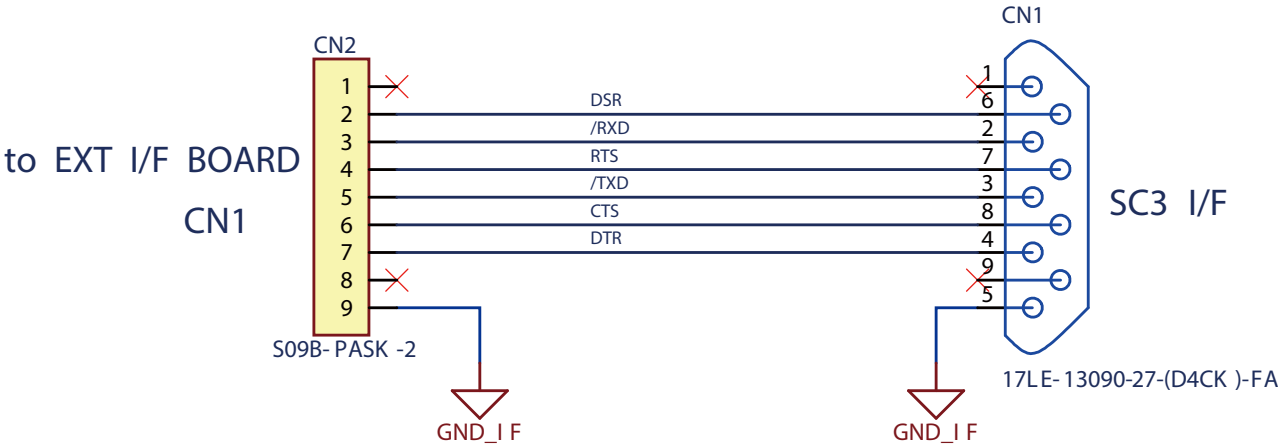
Circuit Diagram



Arrangement Diagram (Component Side)



Circuit Diagram



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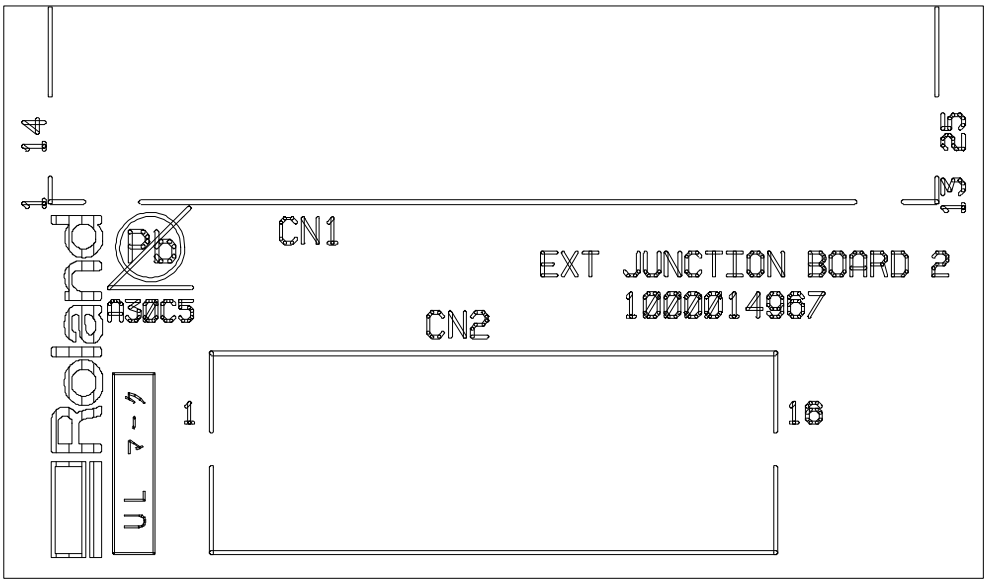
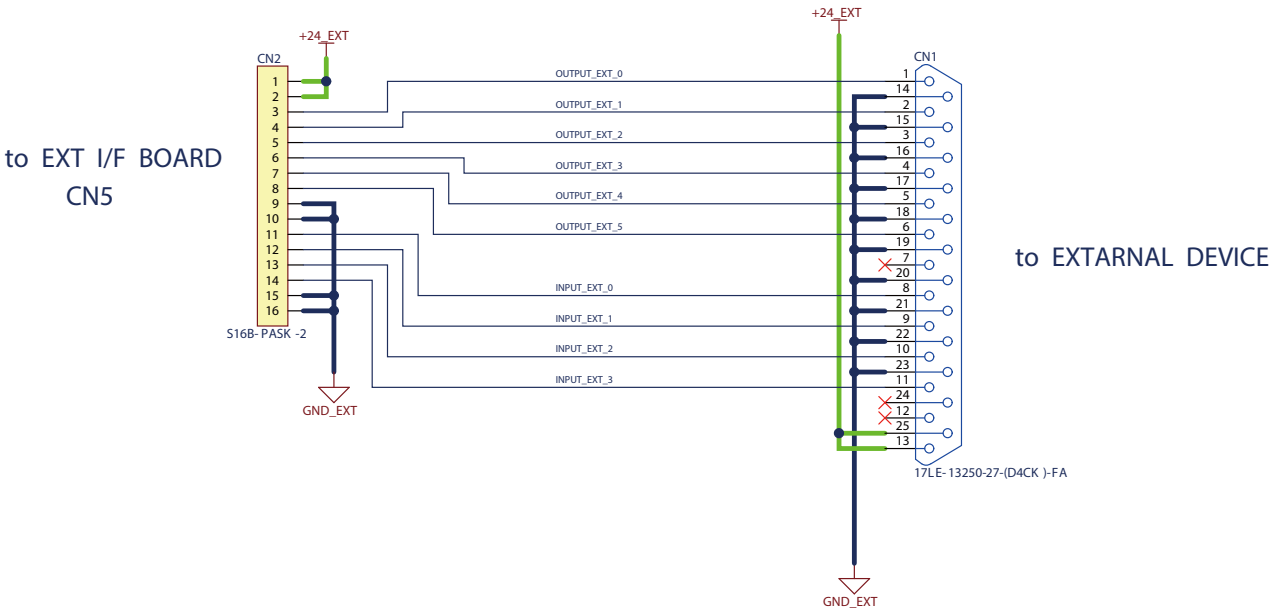
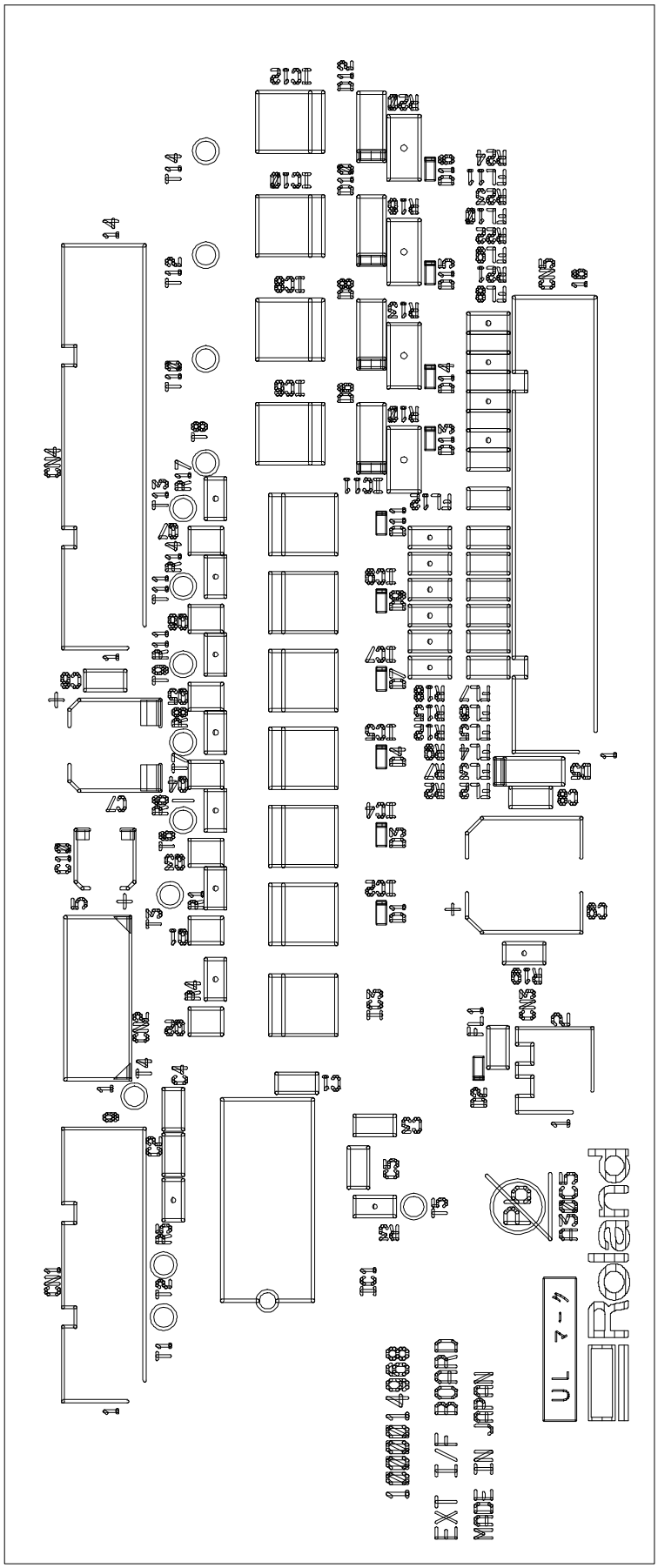


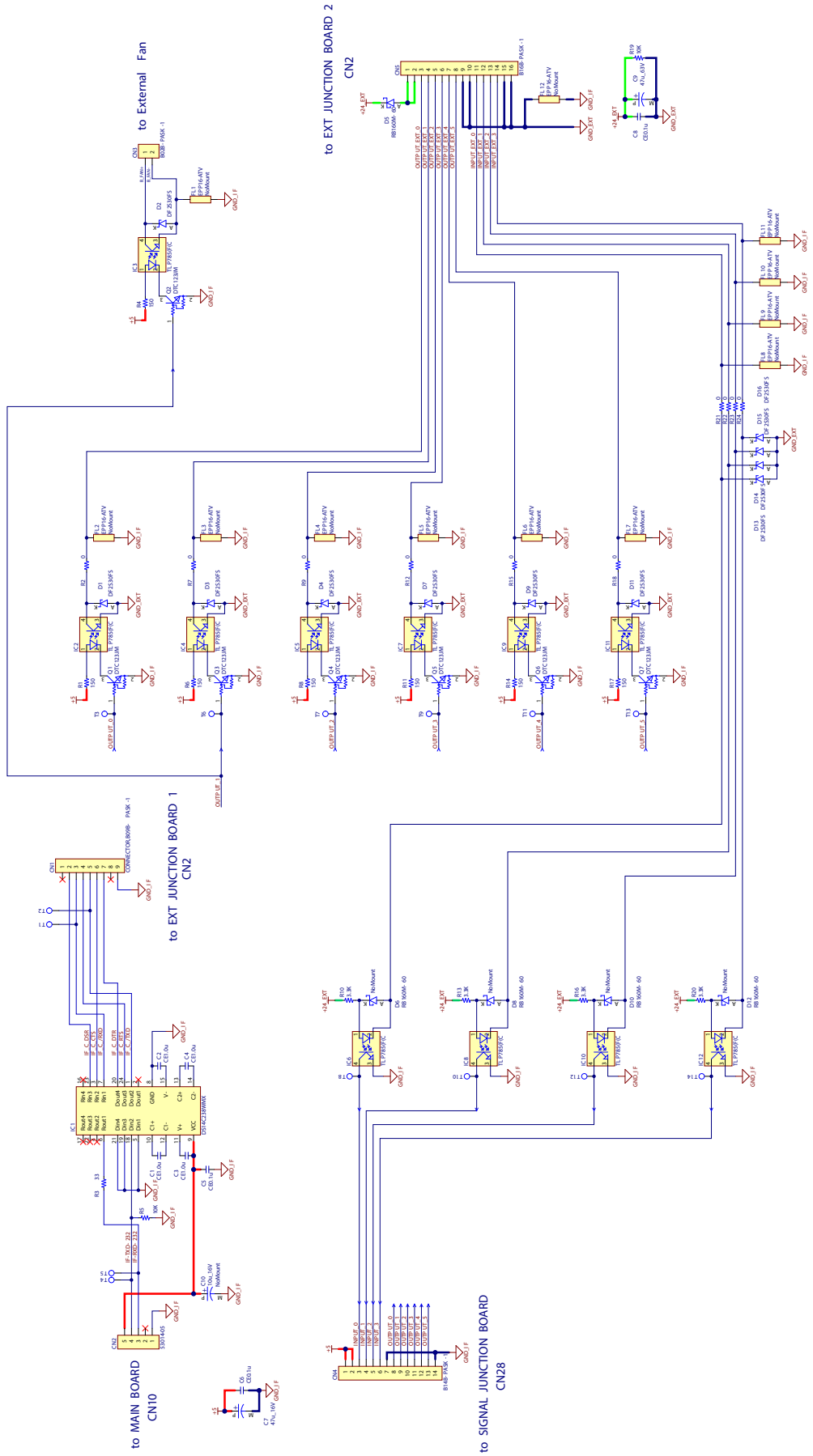
Circuit Diagram



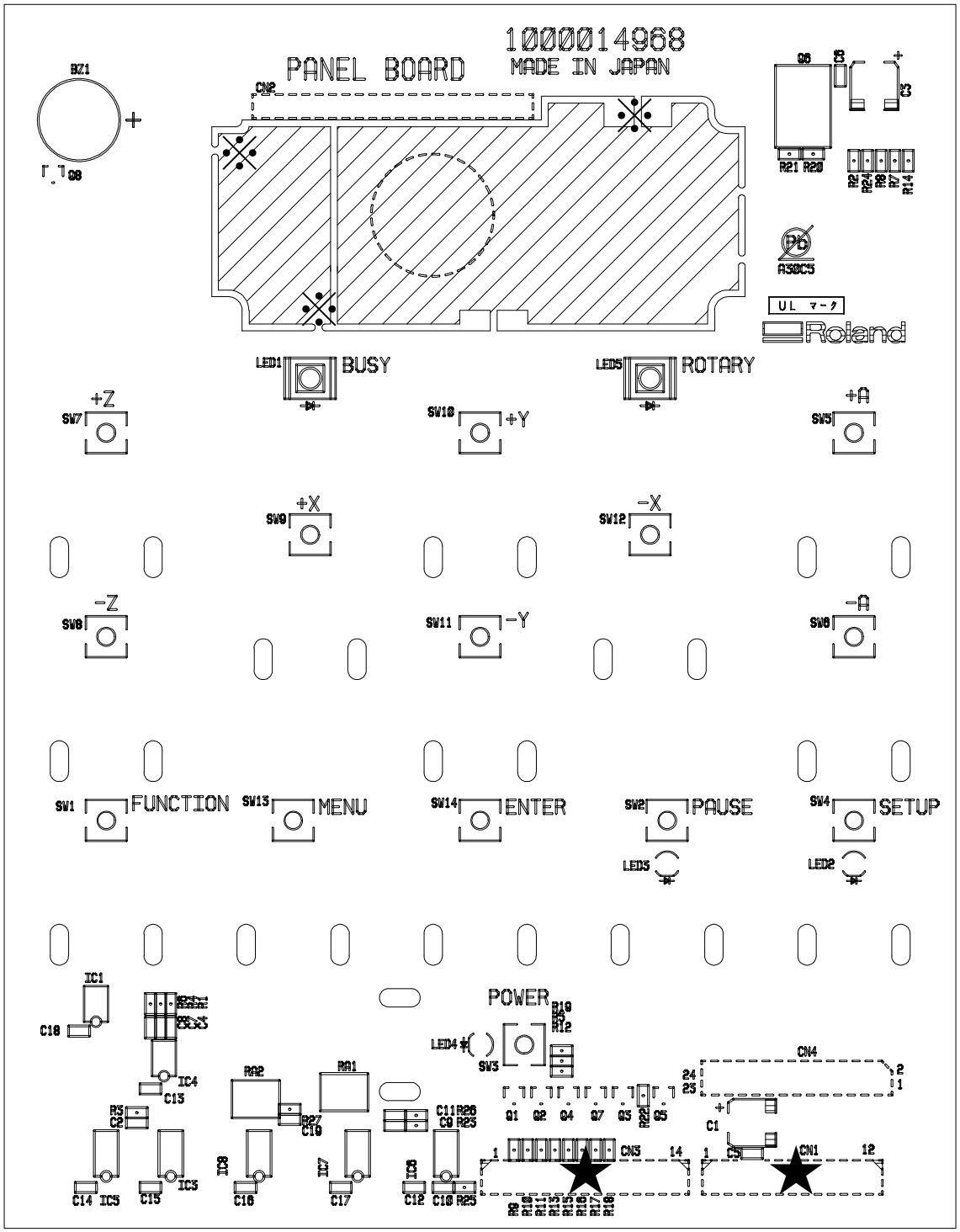
Arrangement Diagram (Component Side)



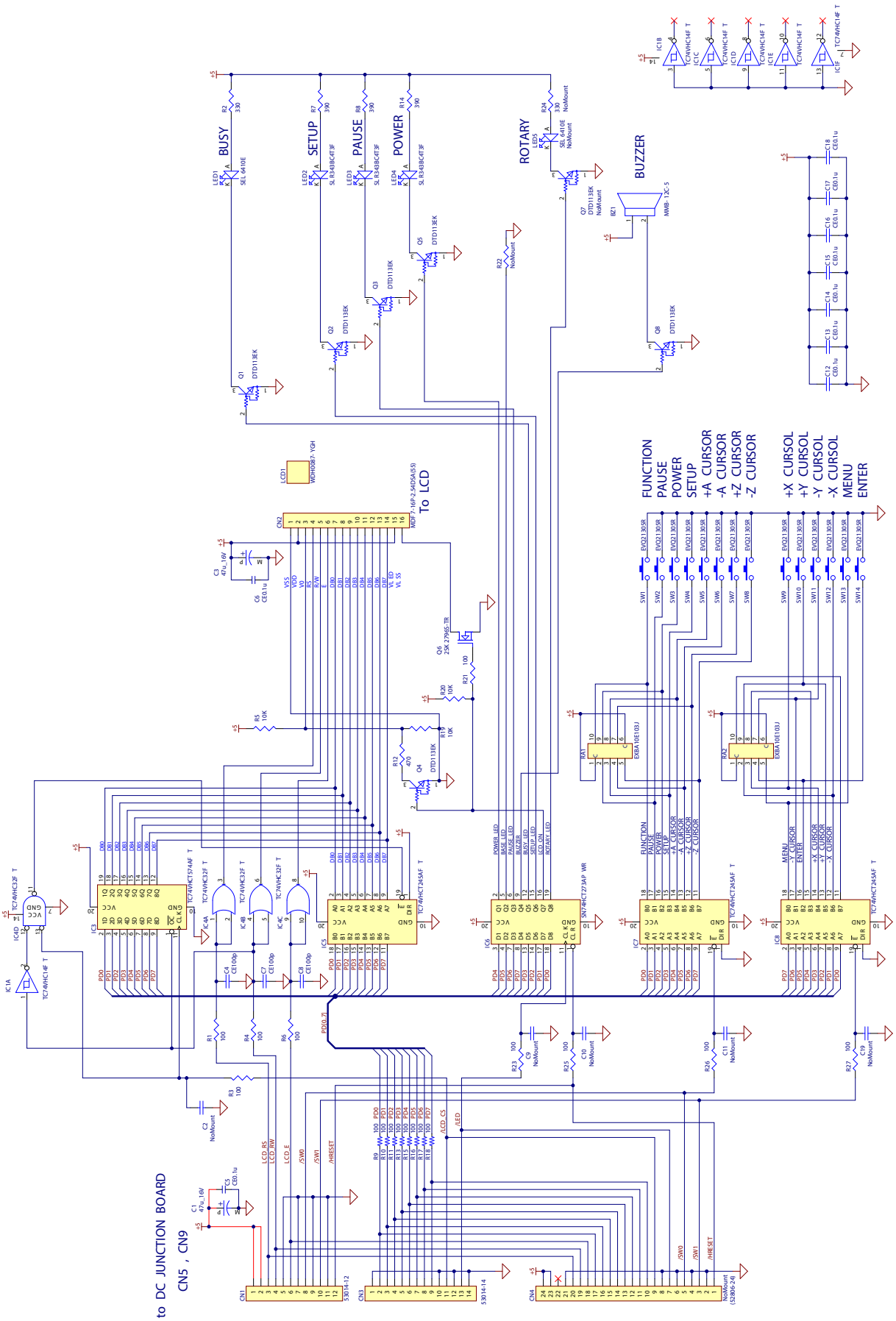
Circuit Diagram



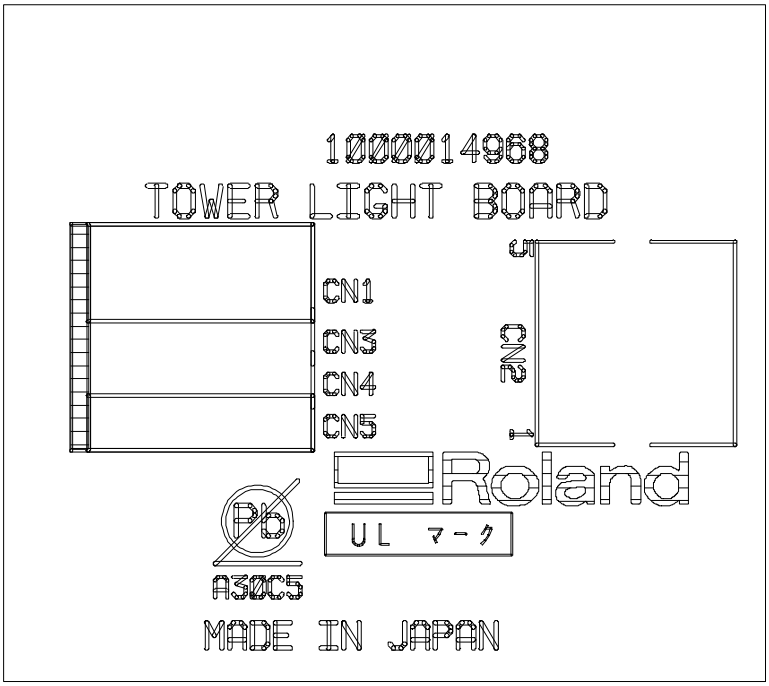
Arrangement Diagram (Component Side)



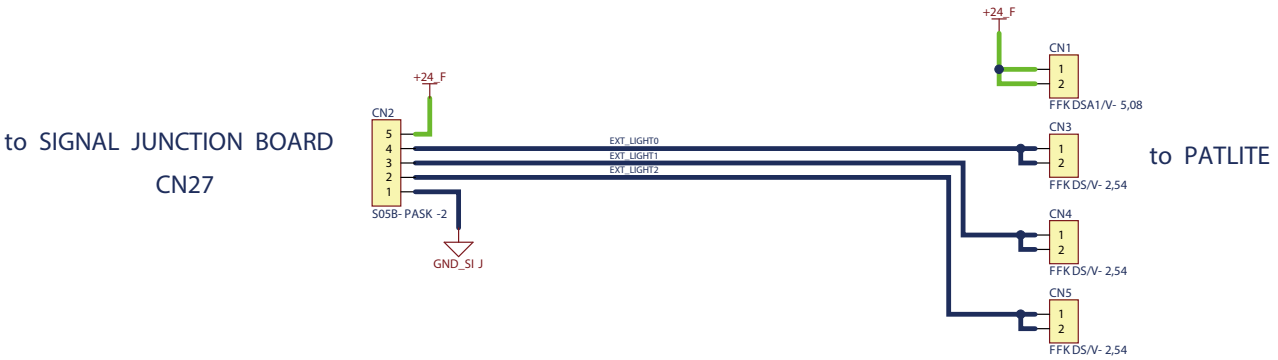
Circuit Diagram



Arrangement Diagram (Component Side)



Circuit Diagram



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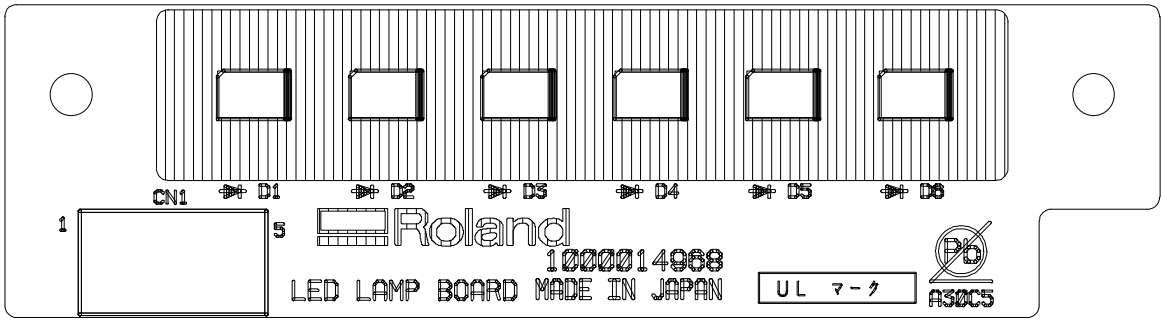

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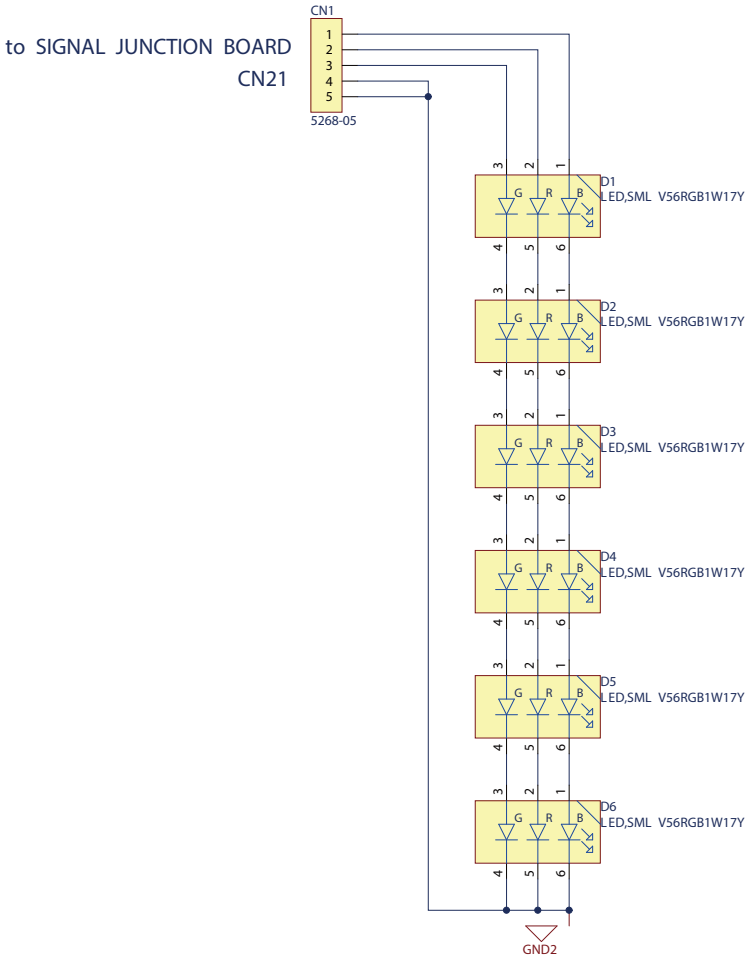
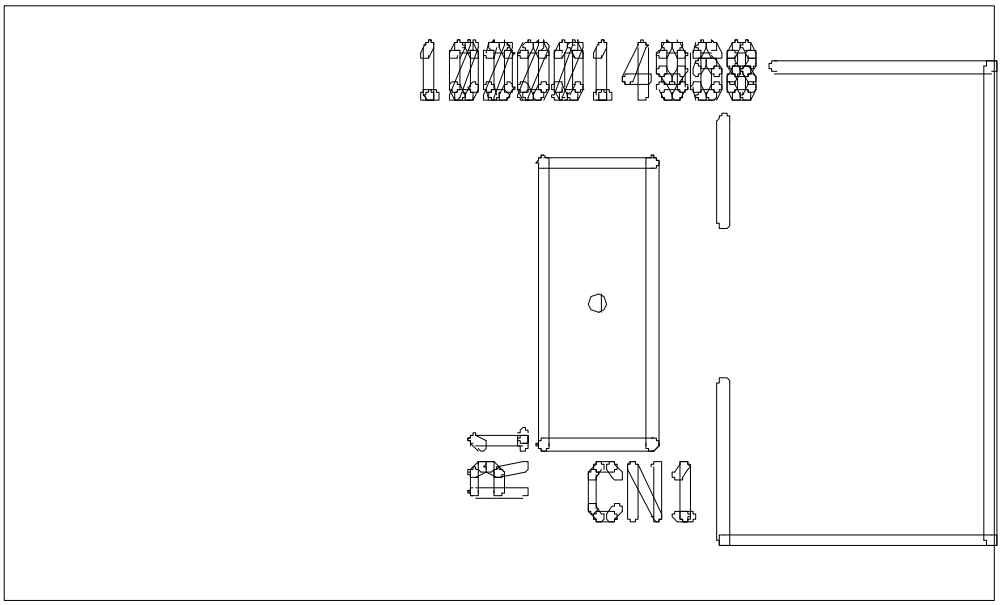
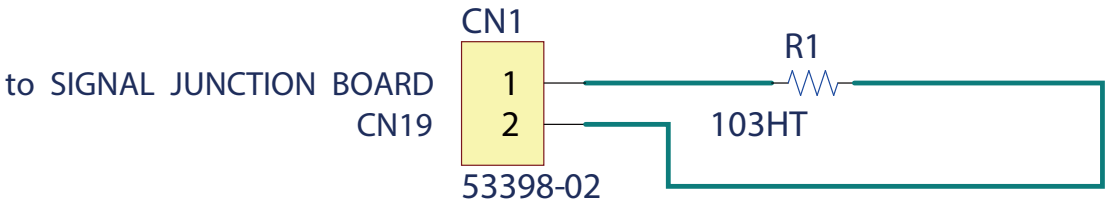


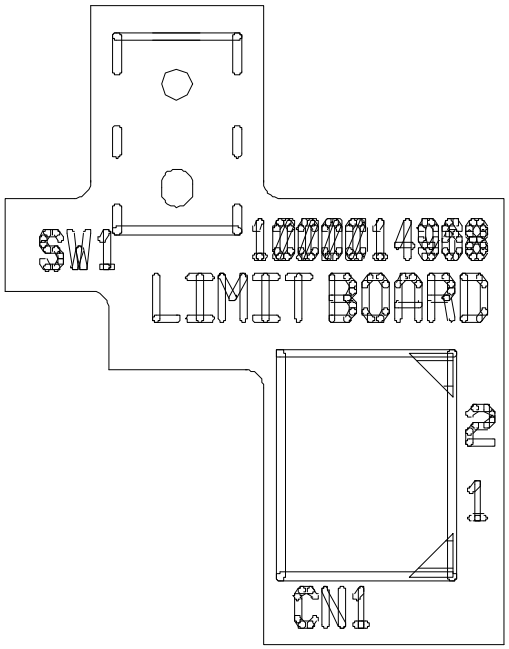
Arrangement Diagram (Component Side)



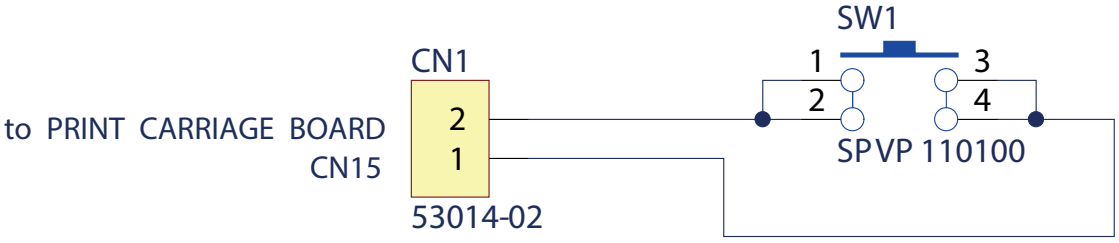
Circuit Diagram



Arrangement Diagram (Component Side)



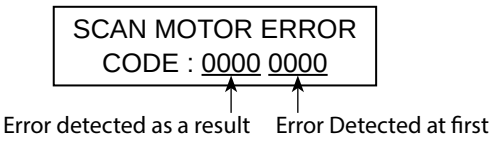
Circuit Diagram



Chapter 4 Supplemental Information

Motor Error 4-2
Error Code 4-3
Sensor Map 4-6

Error Description



No.	Meaning	Cause
0010	Scan motor deviation error (The order from the CPU does not match the feedback of the scan motor.)	< External factors > 1. Media jamming 2. Pull or move the carriage by hands. 3. The carriage runs into a thing / hands. < Printer factors > 1. The grease lubrication of the motor gear is not enough. 2. The motor is broken or comes to its end of life. 3. The servo board is broken. 4. Carriage fixation to the belt is loose. 5. The bearing inside the idle pulley is worn out. 6. The carriage belt loses steps.The carriage belt loses steps. (The symptom may be improved when you grease the belt.)
0040	Scan motor overcurrent error 1 (Big load is put on the motor movement instantaneously.)	
0080	Scan motor overcurrent error 2 (A little load is put on the motor movement for a long time.)	
00C0	0040 and 0080 occurred simultaneously.	
0050	0010 and 0040 occurred simultaneously.	
0090	0010 and 0080 occurred simultaneously	

Error Code

Code	Error Name	Contents	Cause	Action
0002	Sub CPU Error	• Disorder of communication with the sub CPU • This occurs when the sub CPU is not detected after turning on the printer.	• The servo board does not work correctly. • The sub CPU does not work correctly. • There is a bad connection between the main board and the servo board.	• Check cable connection between the main board and the servo board. • Check the other cable connections of the servo board. • Servo board replacement • Main board replacement • Flexible cable replacement
0004	Sub CPU SRAM error	• Sub CPU SRAM error	• SRAM is broken.	• Servo board replacement
0005	Sub CPU download error	• An error occurs when downloading a program for the sub CPU.	• The servo board does not work correctly. • The sub CPU does not work correctly. • There is a bad connection between the main board and the servo board. • A noise on a signal	• Check cable connection between the main board and the servo board. • Check the other cable connections of the servo board. • Servo board replacement • Main board replacement • Flexible cable replacement
0006	Sub CPU Communication Error	• An error occurs when communicating with the sub CPU.	• A noise on a signal while sending a command. • The sub CPU was reset to default. • Tried to communicate when the sub CPU was reset to default.	• Check cable connection between the main board and the servo board. • Check the other cable connections of the servo board. • Servo board replacement • Main board replacement • Flexible cable replacement
0007	Sub CPU command error	• An error occurs while sending a command.	• The servo board does not work correctly. • The sub CPU does not work correctly. • There is a bad connection between the main board and the servo board. • A noise on a signal while sending a command. • The sub CPU was reset while sending a command.	• Check cable connection between the main board and the servo board. • Check the other cable connections of the servo board. • Servo board replacement • Main board replacement • Flexible cable replacement
0008	Sub CPU communication error (serial synchronization)	• There is a problem with synchronizing serial communication to the sub CPU.	• The servo board does not work correctly. • The sub CPU does not work correctly. • There is a bad connection between the main board and the servo board. • A noise on a signal.	• Check cable connection between the main board and the servo board. • Check the other cable connections of the servo board. • Servo board replacement • Main board replacement • Flexible cable replacement
0010	Network initialization error	• Network I/F Initialize has not been completed.	• Network I/F does not work correctly.. ~~• Firmware for Network I/F is not installed.~~	~~• Check if the firmware is installed into Network I/F.~~ • Main board replacement

Code	Error Name	Contents	Cause	Action
0101	Limit position intialize error	• Limit Position Initialize in the service mode has not been done.	• Limit Position Initialize has not been done. • Limit Position Initialize is ended before it is completed.	• Complete Limit Position Initialize correctly.
0102	Limit sensor error	• The head lock sensor is ON when it should be OFF, or vice versa.	• The head lock sensor does not work correctly or is broken.	• Head lock sensor replacement • Check the mechanical backlash or loose with the scan axis related parts.
0107	Linear encoder setup error	• Linear Encoder Setup has not been done.	• Linear Encoder Setup has not been done. • Linear Encoder Setup is ended before it is completed.	• Carry out Linear Encoder Setup in service menu.
0109	Wiper error	• Wiper unit does not work correctly.	• Wiper motor error • Defect of the wiper unit • Defect of the wiper sensor • Cut-line or short-circuit of cable and flexible cable	• Wiper motor Replacement • Wiper unit Replacement • Wiper sensor Replacement • Cable and flexible cable replacement
0110	Linear encoder error	• There is a problem in reading the linear encoder.	• Read error of the linear encoder. • Read error of the encoder on the scan motor side. • Belt is not fixed to the head carriage firmly.	• Confirm whether the encoder scale is between the slit of the encoder sensor in a whole width of the printer. • Check cable connection between the linear encoder board and the head board. • Confirm connection between the belt and the carriage. • Linear encoder replacement • Scan motor replacement • Servo board replacement • Main board replacement
0112	Cartridge IC driver error	• It is not possible to communicate with the cartridge IC driver.	• Cartridge IC driver has a problem (not working). • The communication wire of the cartridge IC driver cable has short circuited or cut-line.	• Ink cartridge IC sensor replacement
0115	External expansion I/O communication error	• Disorder of communication with the external expansion I/O	• There is a problem with the devise. • There is a problem with the sub board.	• Sub board respalcement
0148	Thermistor error (print head)	• There is a problem with the thermistor on the Cyan head.	• There is a bad connection between the Cyan head and the print carriage board (CN18). • There is a bad connection between the print carriage board (CN2) and the head board (CN1). • The Cyan head is broken.	• Check cable connection between the print head and the print carriage board (CN18). • Check cable connection between the print carriage board (CN2) and the head board (CN1). • Cyan Head replacement

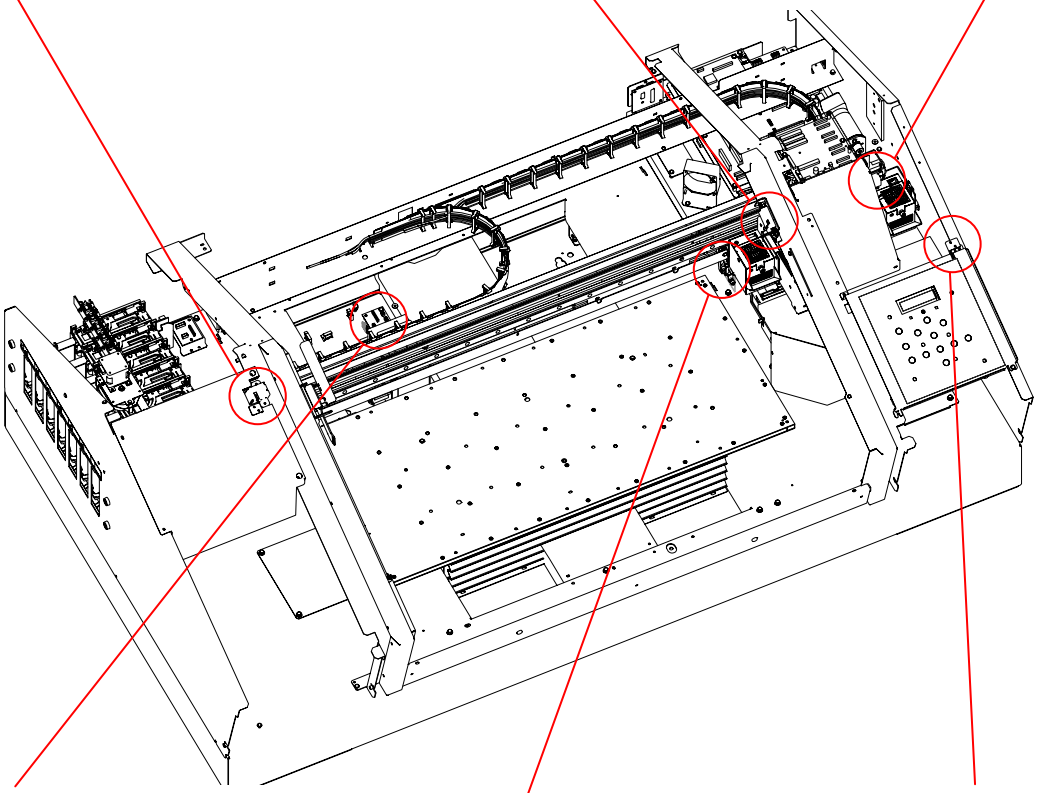
Code	Error Name	Contents	Cause	Action
0210	UV lamp connection error	• The UV lamp is not connected / tuned on.	• There is a bad connection between the UV lamp and the print carriage board. • There is a bad connection between the DC junction board and the signal junction board. • The print carrtiage board is broken. • The DC junction board is broken. • The signal junction board is broken. • The UV lamp is broken.	• Check cable connection between the UV lamp and Pthe print carriage board. • Check cable connection between the DC junction board and the signal junction board. • Print carriage board replacement • DC junction board replacement • Signal junction board replacement • UV lamp replacement
0211	UV lamp error	• The UV lamp is broken. / There is a problem with the UV Lamp. • The thermistor in the UV lamp is extremely high.	• There is a bad connection between the UV junction board and the signal junction board. • The UV junction board is broken. • The signal junction board is broken. • The filter of the UV lamp is clogged. • The UV lamp is broken. *When the bad connections happen at the same time, Service Call [0211] occurs as a high priority.	• Check cable connection between the print carriage board and the signal junction board. • Print carriage board replacement • Signal junction board replacement • UV lamp filter replacement • UV lamp replacement
0212	Lamp slide error	• The lamp slide unit does not work correctly.	• Detect of the lamp slide motor • Defect of the lamp slide unit • Defect of the limit board • Cut-line or short-circuit of cable and flexible cable	• Lamp slide unit replacement • Limit board replacement • Cable and flexible cable replacement
0230	Feed motor error	• The feed origin sensor does not work corrrectly.	• Feed motor error • Defect of the feed motor gear • Defect of the feed belt • Defect of the feed origin sensor • Cut-line or short-circuit of cable and flexible cable	• Feed motor replacement • Feed motor gear replacement • Feed belt replacement • Feed origin sensor replacement • Cable and flexible cable Replacement
0231	HEIGHT motor error	• The table height origin sensor does not work corrrectly.	• Table motor error • Defect of the table unit • Defect of the table height origin sensor • Cut-line or short-circuit of cable and flexible cable	• Table unit replacement • Cable and flexible cable replacement • Grease up maintenance

Sensor Map

MAINTENANCE COVER SENSOR
It detects whether the maintenance cover is set or not.

FRONT COVER SENSOR
It detects whether the front cover is open or closed.

ORIGIN SENSOR
It detects whether the head carriage is at locking position or not. It also detects whether the head carriage is at the origin or not.

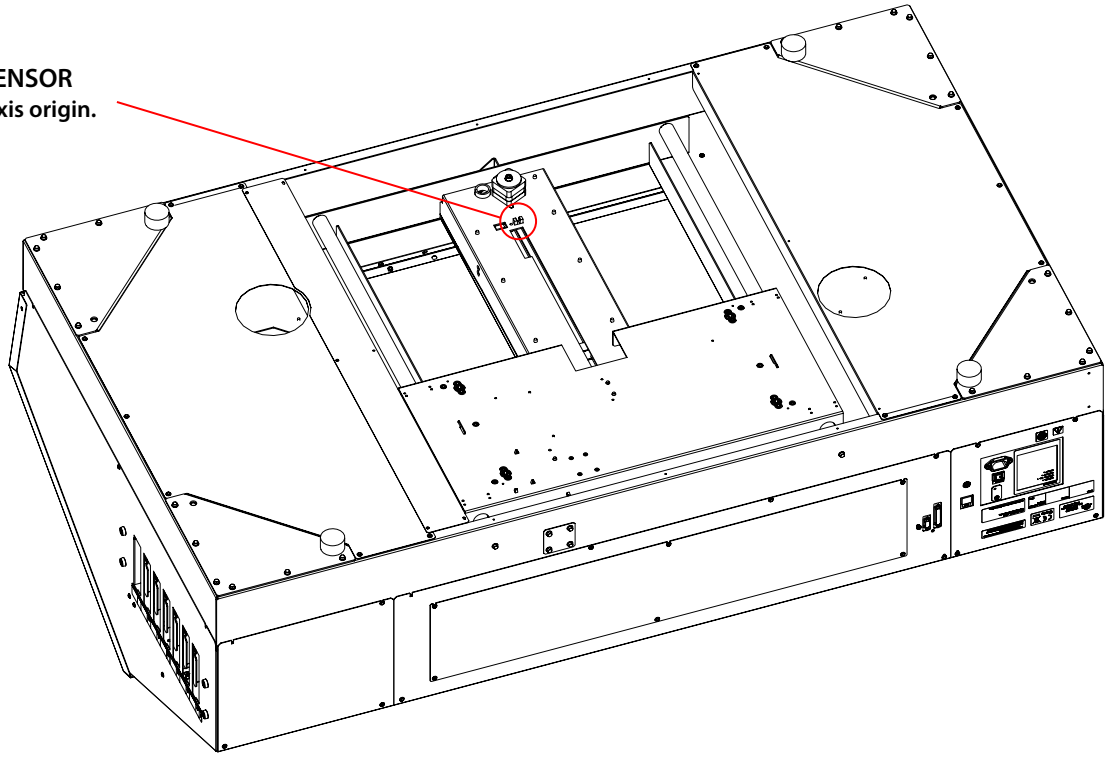


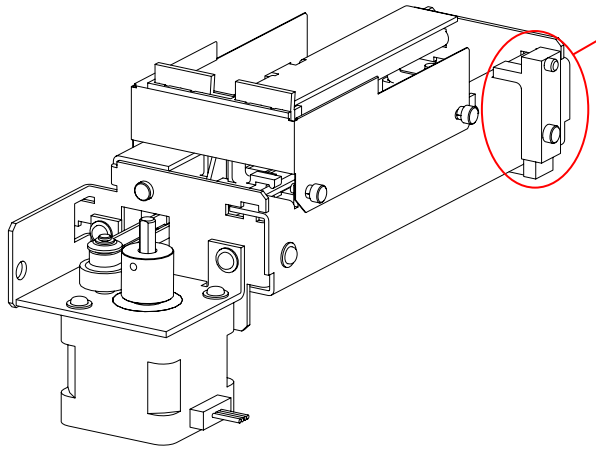
Z ORIGIN SENSOR
It detects the Z axis origin.

HEAD GAP SENSOR
It detects height of the material.

PANEL COVER SENSOR
It detects whether the panel cover is set or not.

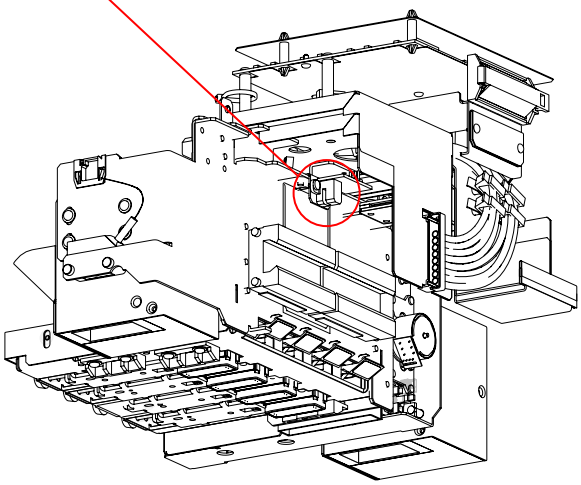
FEED ORIGIN SENSOR
It detects the Y axis origin.

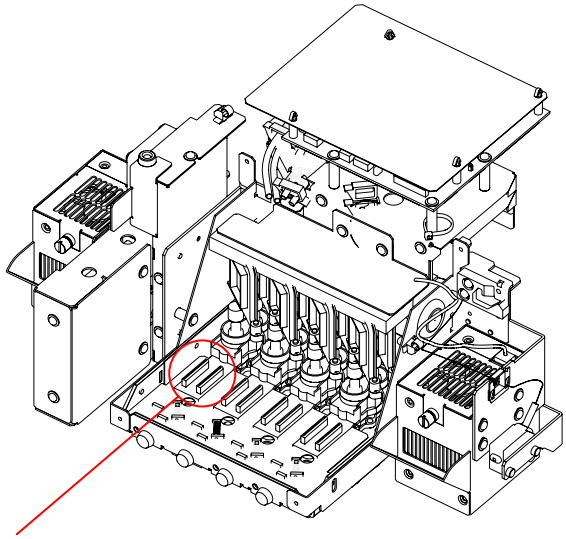




WIPER ORIGIN SENSOR
It detects the origin position of the wiper movement.

ENCODER SENSOR
It detects the coordinates in the carriage moving direction, and also generates the print signal.

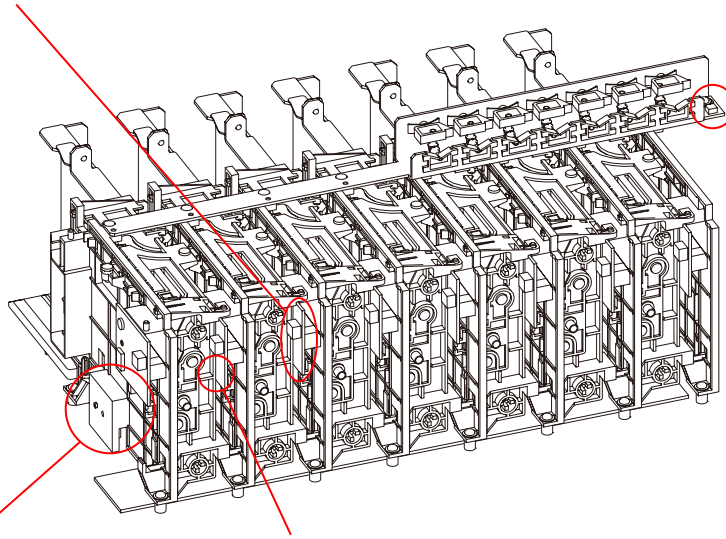




THERMISTOR
It measures the temperature around the print head.

AIR TEMPERATURE THERMISTOR
It measures the temperature around the machine.

INK CARTRIDGE IC SENSOR
It communicates with the IC chip of the ink cartridge.



INK EMPTY SENSOR
It detects whether the ink cartridge is empty or not.

INK CARTRIDGE SENSOR
It detects whether the ink cartridge is installed or not.

Chapter 5 Service Activities

Installation Checklist 5-2

Maintenance Checklist 5-13

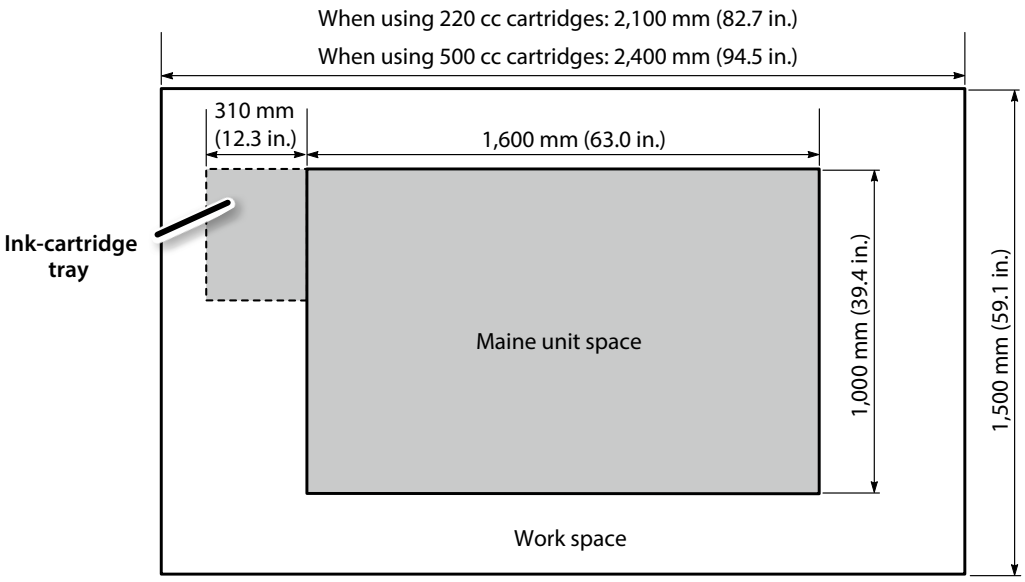
LEF-300 Installation Checklist

Date: _____

User name: _____ Serial number: _____

☐ **Checking the Place of Installation**

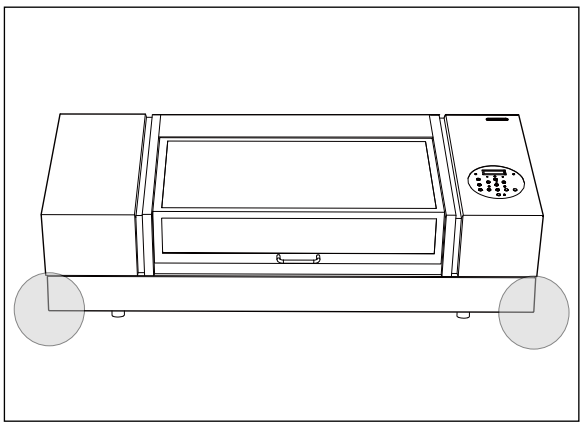
☐ **The space shown in the figure is required in order to use the machine. The required space varies depending on the size of the ink used.**


When using 220 cc cartridges: 2,100 mm (82.7 in.)
When using 500 cc cartridges: 2,400 mm (94.5 in.)
310 mm
(12.3 in.)
1,600 mm (63.0 in.)
Ink-cartridge tray
Maine unit space
1,000 mm (39.4 in.)
1,500 mm (59.1 in.)
Work space

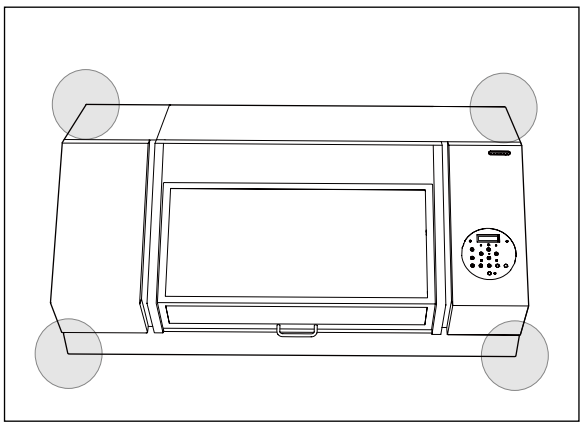
☐ **Install the machine in a location that is level, stable, and able to bear the weight of the machine.**
The total weight of the machine may reach 144 kg (317.5 lb.) or more. Installation in an unsuitable location may cause a major accident, including tipping over, falling, or collapsing.

☐ **The height of installation should be 0.6 m (23.7 in.) or higher above the work floor.**
This machine is desktop type. Install in a location that allows easy access to areas such as the power switch during operation.

☐ **Unloading and placement are operations that must be performed by 6 persons or more. When lifting the machine, hold the locations shown in the figure. Tasks that require undue effort when performed by a small number of persons may result in physical injury. Dropping this machine may result in injury.**

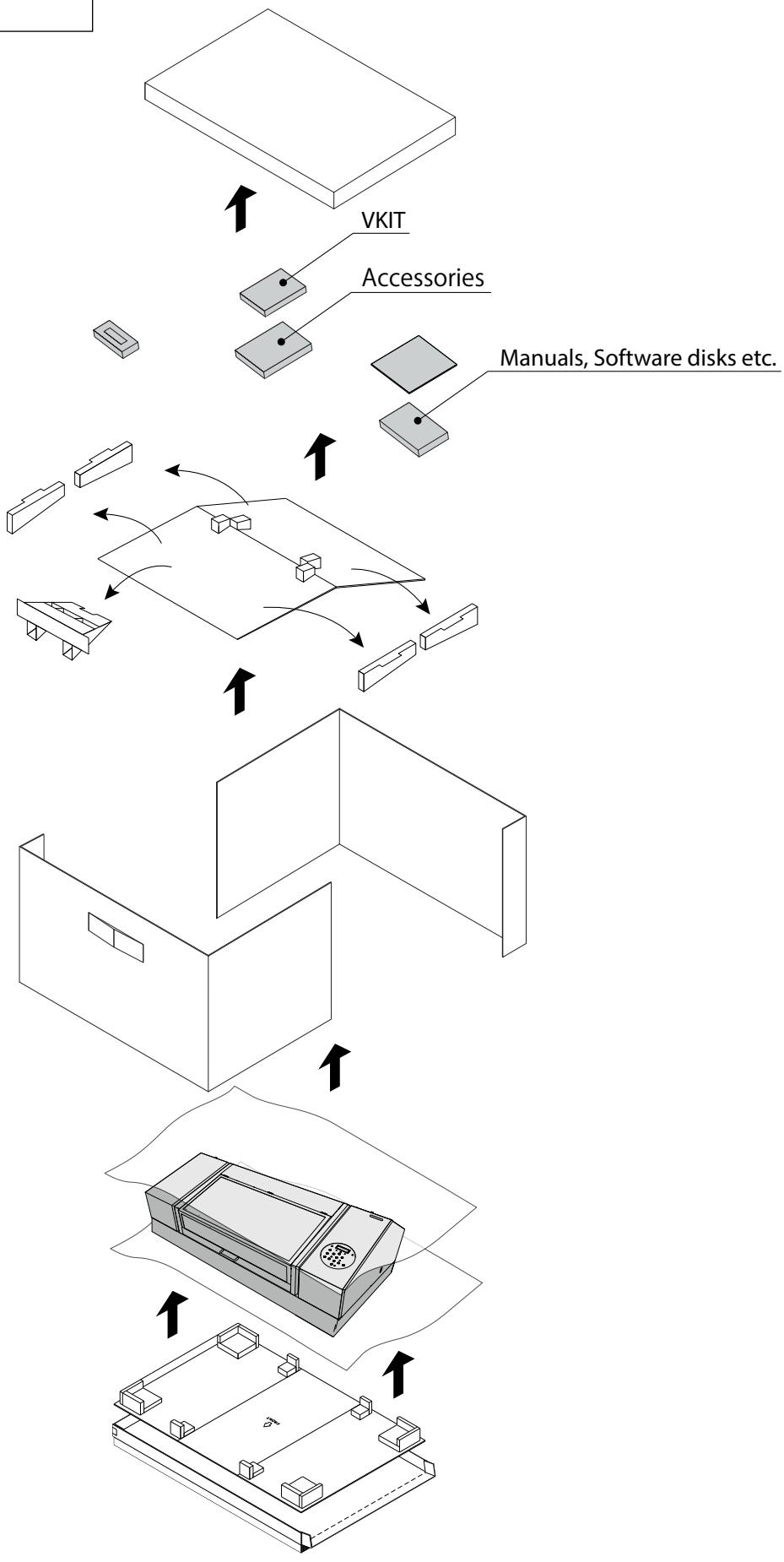


Front



Top

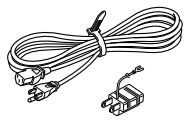
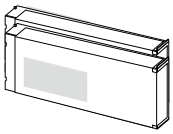
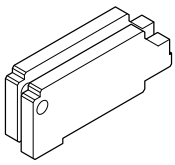
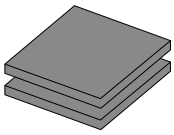
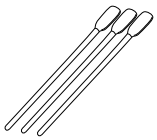
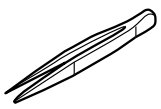
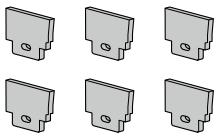
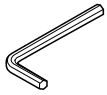
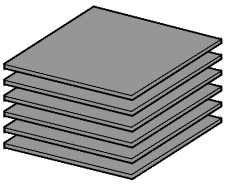
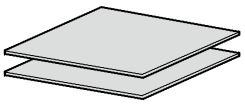
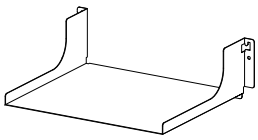
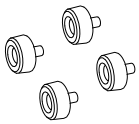
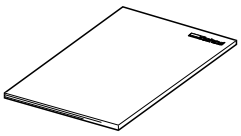
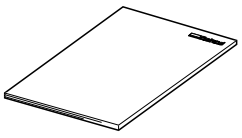
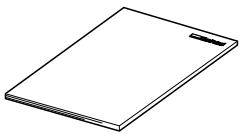
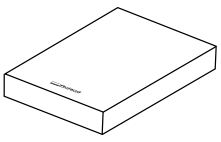
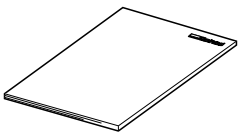
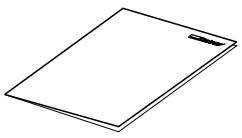
Unpacking



Checking the Accessories

The following items are packed together with the machine. Make sure they are all present and accounted for.

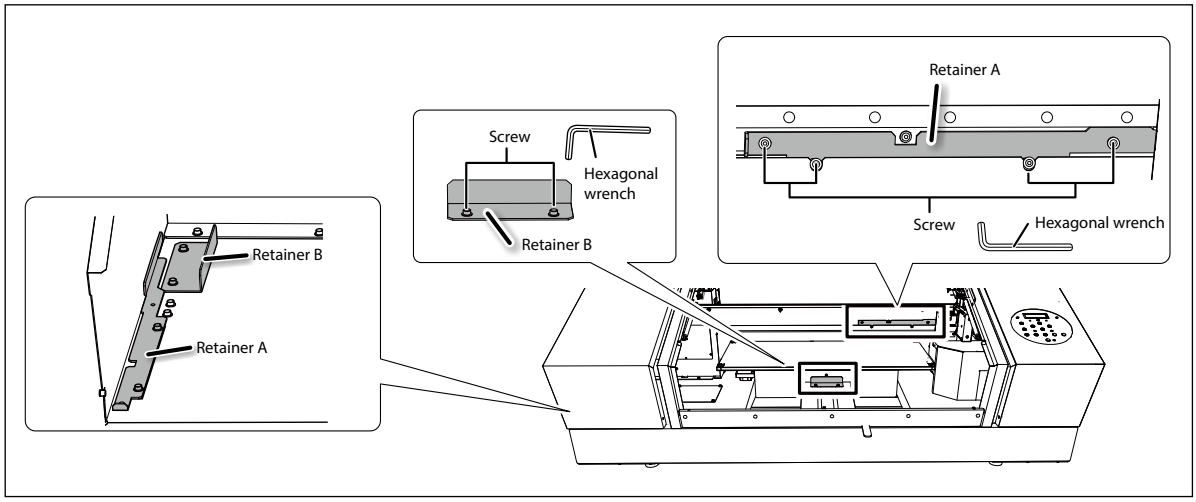
Printer unit

 Power cord, power plug adapter (1 each)	 SOL INK cleaning cartridges (2)	 Dummy cartridges (2)	 Mist filters (2)
 Cleaning sticks	Cleaning liquid (2)	 Tweezers (1)	 Wipers (6)
 Hexagonal wrench (5 mm) (1)	Drain bottle (spare) (1)	 Sponges (6)	 Pad trays (2)
 Ink-cartridge tray (1)	 Screws (for the ink-cartridge tray) (4)	 First Step Guide (1)	 Master Guide (1)
 INKJET PRINTER MAINTENANCE GUIDE (1)	 RIP & PRINT MANAGEMENT SOFTWARE (1)	 White and Gloss Ink Guide (1)	 Points on Print Head Maintenance (1)

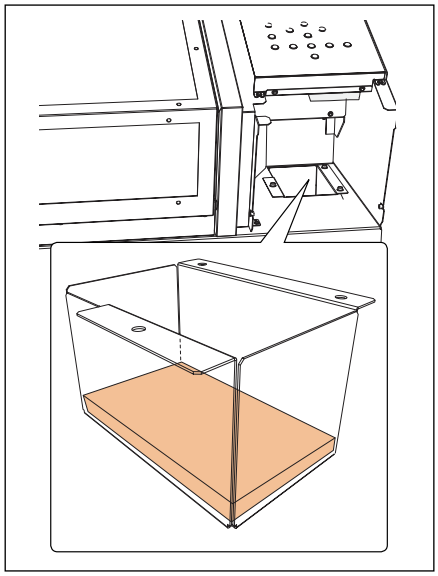
☐ **Installation**

Perform the following work in reference to "STEP 3: Removing the Retainers" to "STEP 6: Initial Settings" under "Before Using This Printer" of the First Step Guide.

☐ **Removing the retainers**



☐ **Attaching the pad tray**



☐ **Connecting the cables**

☐ **Initial settings**

☐ **Installing the ink cartridges**

☐ **Network settings**

IP address of the PC: _____

IP address of the printer: _____

☐ **Upgrading the firmware**

Upgrade the fimware to the latest version.

☐ **Installing Roland VersaWorks Dual**

Install Roland VersaWorks Dual in reference to the Installation Guide.

☐ **Making the settings for Roland@NET**
Select the "Check for the Updates Automatically and Notify" check box if the user agrees with it.

☐ **Turning off the power saving function of the PC**
Disable the PC's power-saving function which makes the PC go standby or sleep. It may interrupt a job being printed.

☐ **Installing Roland OnSupport**

Refer to Roland OnSupport on Manual Library and install the software.

☐ **Basic operations**

・How to display "Roland OnSupport Help"

☐ **Environmental settings (language/network)**

・Checking the network connection

CAUTION

To fully utilize OnSupport, you need to connect your computer to our OnSupport server via the Internet. If your computer is linked to the Internet, you will enable its connection to our OnSupport server only by installing OnSupport.

・Setting the e-mail server
・What is "OnSupport Mail"?

☐ **Registering/loging in/updating the account**

・Register the Roland DG Account if the user accepts it.

CAUTION

When you register the Roland DG Account (Roland DG ID), you will be able to use OnSupport more effectively. You are to communicate with our OnSupport server in registering your account. E-mail address is required.

・How to update OnSupport

☐ Connecting and managing the devices

CAUTION

When you make the management settings, you will be able to use "OnSupport Mail function" and the "Device Firmware Update function." To update the firmware, you need to log in OnSupport with the computer which you made the management settings.

☐ Connecting and managing the devices

CAUTION

- Do not connect a device that does not meet the specifications stated in the Master Guide to the external expansion terminal.
- We are not responsible for devices connected to this connector.

☐ Preliminary Note (to the User)

Explain the following before operating the machine.

☐ Interlock function

CAUTION

The safety against the UV light is assured for users having the UV light shielding measures in the apertural area and the interlock feature that cuts off the UV light when the front cover is opened. Never disable the front cover sensor.

☐ Front cover

CAUTION

Always keep the front cover closed except when necessary, such as when loading media. The front cover prevents direct sunlight or illumination. If the ink receives direct sunlight, the ink is solidified to cause some clogging problems.

☐ Preliminary Note (to the Service Technician)

☐ The influence of UV light from the UV lamp on the eye

CAUTION

Looking directly at the UV light may result in a serious eye injury such as "UV keratitis", "pterygium" or "cataract". Be sure to wear the UV-proof goggles to protect the eyes when performing the maintenance operations of the machine.

☐ The influence of the volatilized UV ink on the eye, nose, and throat

CAUTION

The volatilized UV ink may stimulate the eye, nose, and throat. Be sure to wear the UV-proof goggles and antibromic mask if you replace the print head under the light shielding curtain. It is recommended to wear the goggles and antibromic mask because the symptoms vary between individuals and work hours.

☐ **The influence of UV ink on the skin**

CAUTION

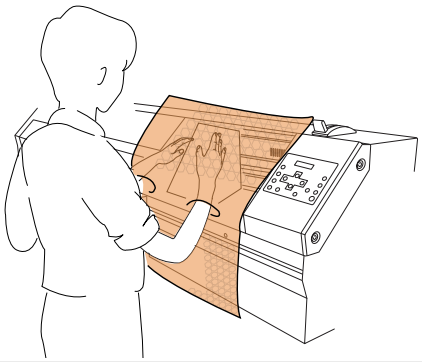
It is recommended to wear the gloves when performing the maintenance operations of the machine. In the event of contacting with the skin, immediately wash with water and neutral soap.

☐ **Protection against the light* during the service activity**

CAUTION

Be sure to use the UV-proof sheet when the ink line is exposed to the light during the replacement, or ink will harden and clog the ink line. And it results in a serious influence to the machine.

* The light means the light which includes the ultraviolet. Consider that most of the light including fluorescent light includes the ultraviolet.



☐ **Basic operation**

Explain the following in reference to "First Time Printing" of the First Step Guide.

☐ **Temporarily remove only the white ink cartridge, shake it 50 times (about 15 seconds), and load it before starting operation for the day.**

NOTE

The ingredients in white ink tend to settle.

☐ **Preparing media**

- Type of media
- Usable media

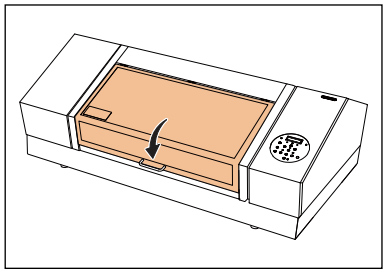
CAUTION

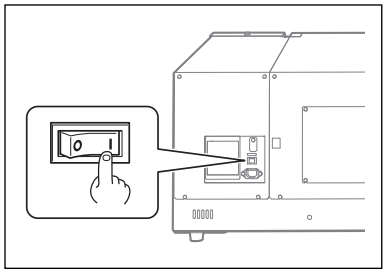
There is a limit to the unevenness on the print surface.
Explain it in reference to "Height Settings When the Print Surface is Uneven" of the Master Guide.

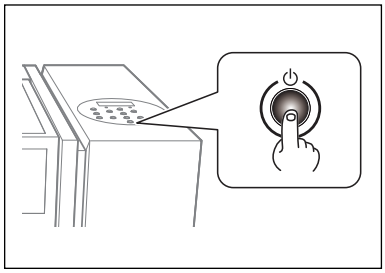
☐ **Switch on / off**

CAUTION

Leave the main power on at all times. Maintenance operation is automatically carried out every 8 hours while the machine is not in use. Use the sub power switch for the daily power-on/off.







☐ **Loading media**

☐ **Specifying print area**

- Set the height position of media (automatic / manual)
- Specify the print area using a laser pointer

☐ **Test print and normal cleaning**

CAUTION

Check for missing dots by performing printing tests before and after daily operations. Carry out printing tests periodically during daily operations also to make sure no missing dots occur. If missing dots appear, perform cleaning (normal cleaning). Leaving the missing dots untreated may be less able to recover the print head. Please make sure to check each day after operation.

☐ **Job outputting from Roland VersaWorks Dual**

Explain the following procedure for a job outputting from Roland VersaWorks Dual.

☐ **Printing**

☐ **Maintenance**

Explain the following in reference to Chapter 2 "Maintenance" of the Master Guide.

☐ **Checking for remaining ink and replacing ink cartridges**

- Checking for remaining ink
- How to replace ink cartridges

CAUTION

- The actual amount of ink remaining is a little different from what is displayed on the operation panel and in the dialog box of RIP software.
- Shake the cartridge 50 times (about 15 seconds) before installing a ink cartridge.
- If ink components precipitate, it will not be possible to print with correct colors. So that the ink mixes well, shake each ink cartridge horizontally with a stroke length of around 5 cm (2 in.) from each end of the ink cartridge.
- If ink components precipitate, it will not be possible to print with correct colors. So that the ink mixes well, shake each ink cartridge horizontally with a stroke length of around 5 cm (2 in.) from each end of the ink cartridge.
- Be sure to replace with the same type of ink. Never mix different type of ink.
- Never store ink at any locations where high temperature may occur or exposed to open flame.
- Store the ink cartridge without opening it under 5 to 35 degrees C temperature, 20 to 80 % humidity.
- When you remove an ink cartridge from the machine, be sure to put it in the original aluminum bag immediately. Even short time exposure to the room light can cause the ink around the connection part of the ink cartridge to harden.
- Always keep the front cover closed except when necessary, such as when loading media. The front cover prevents direct sunlight or illumination. If the ink is exposed to direct sunlight, the ink is solidifi ed to cause some clogging problems.

☐ **Automatic maintenance feature**

☐ **Maintenance that should be performed daily**

- Maintenance of ink cartridges
- Disposing of discharged fluid

The message "EMPTY DRAIN BOTTLE" appears when a certain amount of discharged fluid has collected in the bottle. Dispose of discharged fluid promptly.

CAUTION

- Never mix the discharged ink of ECO-UV4 with other types of ink (ex. ECO-SOL MAX).
- "EMPTY DRAIN BOTTLE" message disappears when "NO" is selected without disposing of discharged fluid. If "NO" is selected continuously, the hand or the work floor may get soiled by overflowing discharged fluid from drain bottle.
- Never place discarded fluid in the location close to fire.
- To store discharged fluid temporarily, use the included drain bottle or durable sealed container such as a metal can or polyethylene tank, and cap it tightly.
- When temporarily storing discharged fluid in the included drain bottle, keep the drain bottle out of direct sunlight. Otherwise the discharged fluid may harden, making the drain bottle unusable.
- Dispose of discharged fluid properly, in accordance with your local laws.

☐ **Cleaning of the flat table**

CAUTION

Never use gasoline, alcohol, thinner, or any other flammable materials.

☐ **Maintenance that should be performed daily**

- Care and maintenance of the print heads

☐ **Each cleaning method**

- Normal / medium / powerful / manual cleaning

☐ **Maintenance that should be performed more than once a month**

- When manual-cleaning becomes necessary
- Performing manual cleaning

CAUTION

- It is a very important work to maintain the heads/UV-LED lamps in good condition and must be done periodically.
- If the UV-LED lamps are contaminated with ink, the ink fired on the media is not cured appropriately.
- Use the included cleaning liquid for cleaning the print heads and the commercially available glass cleaner for the UV-LED lamps. Never use the cleaning liquid and glass cleaner the other way around.
- Never use a cleaning stick that has already been used to clean the print heads for cleaning the UV-LED lamps and vice versa.
- To prevent the print heads from drying out, finish the cleaning in 10 minutes or less.

Maintenance

When the missing dots of white ink cannot be resolved

- Ink renewal

When the precipitation of the white ink hardens, perform the [INK RENEWAL] in the users menu. This maintenance requires three cleaning cartridges.

- Ink circulation and ink discharge

The ingredients in white ink tend to settle. Therefore, when the machine is left more than eight hours without any operation and receives a white ink job, the machine executes the ink discharge and drains the ink of B Group (White and Gloss) automatically.

Replacing consumable parts

- Replacing the wiper
- Replacing the filter

When not in use for a prolonged period

- Keep performing maintenance
- Alarm feature
- Important note on draining ink

Temperature and humidity

Specified temperature and humidity must be maintained even if the machine is not in use (essential condition). When the temperature is too high, the alteration of ink may damage the machine. And, when it is too low, frozen ink may damage the print heads.

In use: Temperature 20 to 32 degrees C, Humidity 35 to 80% (Non-condensing)
Not in use: Temperature 5 to 40 degrees C, Humidity 20 to 80% (Non-condensing)

Compatibility of ink to the media

There is the case that is easy to come off the ink by the media. We recommend performing a trial printing to check for the compatibility of media before you carry out the actual printing.

The dust becomes noticeable on the gloss ink due to the characteristics of the gloss ink. Make sure to prevent the accumulation of dust on the media.

The gloss ink may bleed depending on the media used.

- The embossed-finish printing may solve this symptom when you use GlossVarnish(v) + PASS mode and set the number of Overprint.
- Using another media may solve this symptom.

Guide them to refer to the User's Manual when an error message is displayed. And also, explain to restart the machine and check what happens before calling for inquiry when [SERVICE CALL] is displayed, since it occasionally solves the problem just by restarting.

Explain the procedure of capping the print heads referring to Chapter 4 "Read this Section Whenever You Face a Problem (FAQ) The Print Heads Do Not Move" of the Master Guide. When the print carriage does not return to the standby position, capping needs to be done manually by user.

Consumable Parts and Replacement Cycle

Parts name	Replacement Cycle
UV-LED lamp	10,000 hours
Print head	6 billion shots / nozzle (6,000,000K shots)
Wiper	6 months, wiping 3000 times or rubbing 100 times The message appears when the number of wiping and rubbing come to 3,000 times.
Scan motor	3,000 hours
Cap top	6 months
Ink tube	3,000 hours
Sponge for mist catcher	500 hours The message appears when the printing hours comes to 500 hours.
Sponge for wipers	Replace when worn out
Lithium battery	24 months
Pad tray	Depending on the damage degree
Front cover cushion	6 months or depending on the damage degree
UV-LED lamp filter	Replace the filter when it is clogged.

LEF-300 Maintenance Checklist

Date:

User name: Serial number:

Check Items		Operation Points	Check	
Interview the customer		Ask the customer if there is something that he/she is concerned about.	☐ Done	
Output / get report before maintenance		Get report with [Get Report] of the Peck, or print [ALL] in service menu.	☐ Done	
Check the drain bottle		If a large amount of ink is discharged in the drain bottle, dispose of it and give an explanation to the customer. Make sure to reset the discharged ink count.	☐ Good ☐ Disposed	☐Reset
Upgrade the firmware to the latest version		Upgrade the firmware if the installed firmware is not the latest version.	☐ Done	☐Unnecessary Ver.
Check Consumable Parts	UV-LED lamps	Check if the UV glasses are contaminated with dust or ink. If a cleaning is needed, clean them manually with cleaning liquid (SL-CL) or ethanol.	☐ Cleaning done	
	Print head	Determine if the print heads should be replaced based on the SHOT COUNT in the History Report, the test print result, and the customer's interview. Replacement cycle : 6 billion shots/nozzle	☐ Good ☐ Replacement done	☐Reset
		Perform manual cleaning by using cleaning sticks and cleaning liquid.	☐ Cleaning done	
		Output the test patterns for BIAS, VERTICAL, HORIZONTAL, and BIDIR. DEFAULT to check the error, and perform adjustment if necessary.	☐ Good	☐ Adjustment done
	Scan motor	Determine if it should be replaced based on MOTOR ERROR and MOTOR HOURS S in the History Report, the motor sound heard while printing the report and the customer's interview. Put some grease (FLOIL G-902 10ML_02) on the gear if you replace the motor. Replacement cycle : 3,000 hours	☐ Good ☐ Replacement done	☐Reset
	Cleaning wiper	Determine if it should be replaced based on the deformation or the time period from the last replacement. If replacement is unnecessary, clean them manually using the Roland cleaning stick and cleaning liquid. Replacement cycle : 6 months or Wiping count	☐ Cleaning done	☐ Replacement done
	Cap top	Determine if it should be replaced based on the performance of the cleaning or the time period from the last replacement. If replacement is unnecessary, clean them manually using the Roland cleaning stick and cleaning liquid. Replacement cycle : 6 months	☐ Good ☐ Cleaning done	☐ Replacement done
	Sponge under the wipers	Determine if it should be replaced based on its appearance or the time period from the last replacement. Replacement cycle : 12 months	☐ Good	☐ Replacement done
	Wiper scraper	Clean it manually using the Roland cleaning sticks and cleaning liquid. Replace it if necessary.	☐ Cleaning done	☐ Replacement done
	Sponge for mist catcher	Determine if it should be replaced based on its appearance or the time period from the last replacement. Replacement cycle : 500 hours	☐ Good	☐ Replacement done
	Z-axis shaft, screw / head gap sensor	Lubrication cycle (FLOIL G-902 10ML_02) : 6 months	☐ Done	☐ Unnecessary
	Lithium battery	Replacement cycle : 24 months	☐ Good	☐ Replacement done
	Front cover cushion	Determine if it should be replaced based on its appearance or the time period from the last replacement. Replacement cycle : 6 months	☐ Good	☐ Replacement done
	UV-LED lamp filter	Replace the filter when it is clogged.	☐ Good	☐ Replacement done
Check Mechanical	Carriage belt	Check if the carriage belt doesn't touch the flanges of the drive pulley and idle pulley when the head carriage moves in the full width. Adjust the belt position, if necessary.	☐ Good	☐ Adjustment done
		Check the belt tension and adjust it if necessary.	☐ Good	☐ Adjustment done
	Y-axis belt	Check if there is no dirt or scratches.	☐ Good	☐ Replacement done
	Drive gear	Check if there is no dirt or scratches.	☐ Done	
	Vacuum fan filter	Check that it is not dirty nor clogged.	☐ Good	☐ Replacement done
Check printing		Check that there is no problem with the printing operation and printing result.	☐ Done	
Output / get report after maintenance		Get report with [Get Report] of the Peck, or print [ALL] in the service menu.	☐ Done	
Remarks				